

Hey guys,....

Been a while since I had anything on the bench and with the outcry among our fellow builders that there's too much buying and not enough building going on, I thought it would be a cool thing to walk you through a little tutorial on doing a two part jacket mold with a silicone insert.

It's a little jumpstart to get the creative vibe a-flowin' and some of you may actually want to try this out on your own stuff.

This type of mold is a bit more complex than your normal build-a-box-around-a-buck-and-pour type silicone mold. It takes a lot of time, even more patience, and careful planning.

If it's done right, you'll have a nice, clean, strong mold and the silicone will have a uniform thickness throughout, without any thin spots.

Let's get started shall we.....

And before we start, I wanna apologize in advance because I got the brilliant idea to document the process about four steps into it.

So the best I can do is describe the process up to the first photo.

So,.....off we go!

First up,.....the subject. A meticulously re-sculpted and re-worked Vader helmet, (I think it's an old Don Post Deluxe but don't quote me on that), I've had lying around for years and it was a complete and utter clown-shoe of a piece.

It was warped, cracked, suffered from varying thicknesses throughout the dome and face-mask, the neck line on the mask was a mess, the tusks, grille, eye-wells and chin vent, as well as huge portions of the dome itself all had to be completely resculpted.

It took me months of on and off work, (working when my schedule would allow), and I finally completed the piece. It was ready for rubber!



Here's a closeup shot of the face-mask. I re-sculpted the chin vent to reflect the *ANH* helmet as opposed to the *ESB* version. The chin vent in the first film was smaller than in *Empire*. I also sculpted a new mouth grate which is designed to be set back a bit from the edge of the mouth of the mask and will be cast as a separate piece to be inserted in the final helmet later as an add-on before painting.

The tusk-mounts have been resculpted as well.



First up,....I removed the dome from the mask and mounted it separately on a post and on it's own molding board.

Disregard the clay seam around the bottom of the helmet as that comes later. This photo is the closest version I have to show what the helmet looked like before the clay coat.



The helmet "floats" anywhere from 3/4 of an inch to an inch above the surface of the molding board and the shelf that sits under the brow portion of the helmet.

Next up,....

You make a clay rolling board which is composed of a flat piece of wood, (the one I use is about 8X10 give or take), with two "rails" on either side of the board, (about 3/4 in. high), that will act as a depth-gauge.

You then fill the board up with water clay. Packing it down as tight as possible and pushing it as much to the edges as you can. Then you take a piece of PVC tubing, (or anything smooth like a rolling pin of sorts), and roll out an even sheet of clay, cutting off the excess from the edges of the board, leaving you with an even 3/4 in. slab of clay that has a perfect uniform thickness.

Next,...

Cover the helmet with a trash bag, (or any other type of plastic sheeting), so the oil from the clay doesn't damage the sculpture, then cut strips of clay from the rolling board, and begin laying up the clay coat over the sculpture, leaving about a 3/4 in. "lip" around the perimeter of the helmet.

This could take well over an hour, connecting the slabs and filling the gaps until the helmet has a perfect uniformly thick layer of clay around it.

Next,...

I rolled out another board of clay, and cut 1 in. wide strips and ran them down the center of the helmet, (from the top of the dome and radiating out), in a "+" shape, (as it would look if you were staring down at the helmet). I also jam a spray-paint cap into the clay at the top of the dome to act as a pour hole for the silicone.

These will act as "keys" to lock the silicone into the jacket later. I also run another strip around the perimeter of the helmet where the skull portion meets the "samurai flare".

Next,...

I took an acrylic dowel, (about a half-inch) and poked depressions around the "lip" of clay that runs around the perimeter and base of the clay coat. These will act as keys as well that will lock the silicone around the inside edge of the jacket.

Next,....

I roll out more clay and cut two inch wide strips, stand them up on their edges and run them length-wise down the center of the helmet on top of the center "key".

This forms a big clay "fin" that bisects the helmet and clears the way for the first step of the fiberglass jacket.

Next,... your clay-coat is done, your keys are in, the piece is bisected. Now you are ready for step one of the jacket.

THE BONDO COAT.

Here's what you do. You take a large amount of bondo, (enough that will cover half the clay-coat with some to spare), and fiberglass resin.

You combine the fiberglass resin and the bondo in a medium sized bucket and mix it until it's a paste of medium to thick consistency.

Then you add the Bondo creme hardener, and the fiberglass catalyst, (kicker) into the mix, (follow the directions) and mix everything until it's blended into a tan-colored thick paste.

Next up,...

Vaseline the molding board around the base of the sculpture and slather the bondo coat over the first half of the clay-coat, over the lip and onto the board itself.

When the bondo reaches the consistency of soft leather, trim the excess so it's got a neat edge, and let it dry the rest of the way.

Once the bondo coat is dry, you need to apply "fiberglass MUD", (a mixture of Cabosil or "resin-thick" with fiberglass resin into a jelly-like mixture).

Apply the "MUD", (after kicking in a few drops of fiberglass catalyst), onto the bondo, rounding out the corners and undercuts so the fiberglass doesn't have trouble sticking up into sharp corners, (around the keys etc.).

Next,...

Fiberglass the first half of the jacket, applying the glass-weave in palm sized patches and covering everywhere you did the bondo-coat.

Next,....

Once the first half of the fiberglass jacket is dry, remove the "clay-fin", apply vaseline to the inside edges of the first half of the jacket, (if you don't, the second half of the jacket will bond to the first half and you're screwed), and repeat the bondo-coat, mud and fiberglass jacket to form the second half of the jacket.

The jacket is done, and this is what you have, (now the pictures start)



Then, trim the excess fiberglass, as much as possible while it's still connected to the board), from the edges of the jacket, drill screw holes down the entire length of the fin and separate the two halves of the jacket from the dome. This takes some work but once it's done, this is what you have



Next,...

Clean the clay out of the halves of the jacket. This will take some time, the drier the clay gets, it will chip out. Once most of it is out, clean the inside of the jacket with rubbing alcohol.

This is what you get,...



Here's a good shot that shows you the space between the helmet and the jacket.



Next,...

Build a clay wall inside the helmet that will block off the space between the helmet edges and the molding board and the brow mount.

The brow mount has a space so I can reach in and make sure the clay wall is reinforced from the inside of the helmet. It needs to be strong so the silicone does not break the seal and leak out.



Next,....

Apply a coat of vaseline to the inside of the two halves of the jacket, (to make the silicone easier to de-mold once it's done), clamshell the two halves to each other, bolt them back together over the helmet dome and secure the jacket down to the molding board. I bolt it down and then hot-glue the edges, as well as the fin up the center. Make sure you take time and do it right. If there is even a pin-hole, the silicone will find it and leak out. It's relentless.



Before securing it down, I drill air-holes along the bottom lip of the jacket as well as adding extra keys in the surface of the jacket itself by drilling 3/4 in. holes in various places.

The extra holes have a dual purpose. They act as extra keys, and more importantly, help you make sure that the major parts of the helmet are not touching the inside of the jacket anywhere.

This step is not mandatory and you can absolutely get away with not doing it. However, if you do, make sure to secure the holes with either thick clay, or hot glued disks.

The last thing you want is a silicone leak from any of these holes. I use a killer industrial strength tape, (not for everyone) that works well but it's probably not the best idea.

It's worked fine so far but I'm most likely bucking the odds.

Bottom line,...plug up the holes good and strong.

Next,....

Pour your silicone. For this, it took about two gallons. You will need to watch the air-holes on the base and as the silicone starts to seep out, plug the hole with clay. Keep a glue-gun on hand and extra clay in case of leaks. The first two hours are crucial for this and you have to keep an eye on the mold. Once the silicone starts to kick, the risk is less.

It's a lot harder for silicone to leak as it thickens up but for the first few hours,...don't plan on going anywhere.



After about 6-12 hours, depending on humidity and heat, the silicone will be dry. Un-bolt the two halves of the jacket, un-screw it from the board, chisel the hot-glue seam off and work the two halves of the jacket apart.

Then peel the silicone sleeve off of the helmet, clean it with alcohol, trim the flashing and fit it back into the jacket.



Your mold is done!

Next up,.....casting a dome from your new mold!!!!

But that's later!

Hope you enjoy!

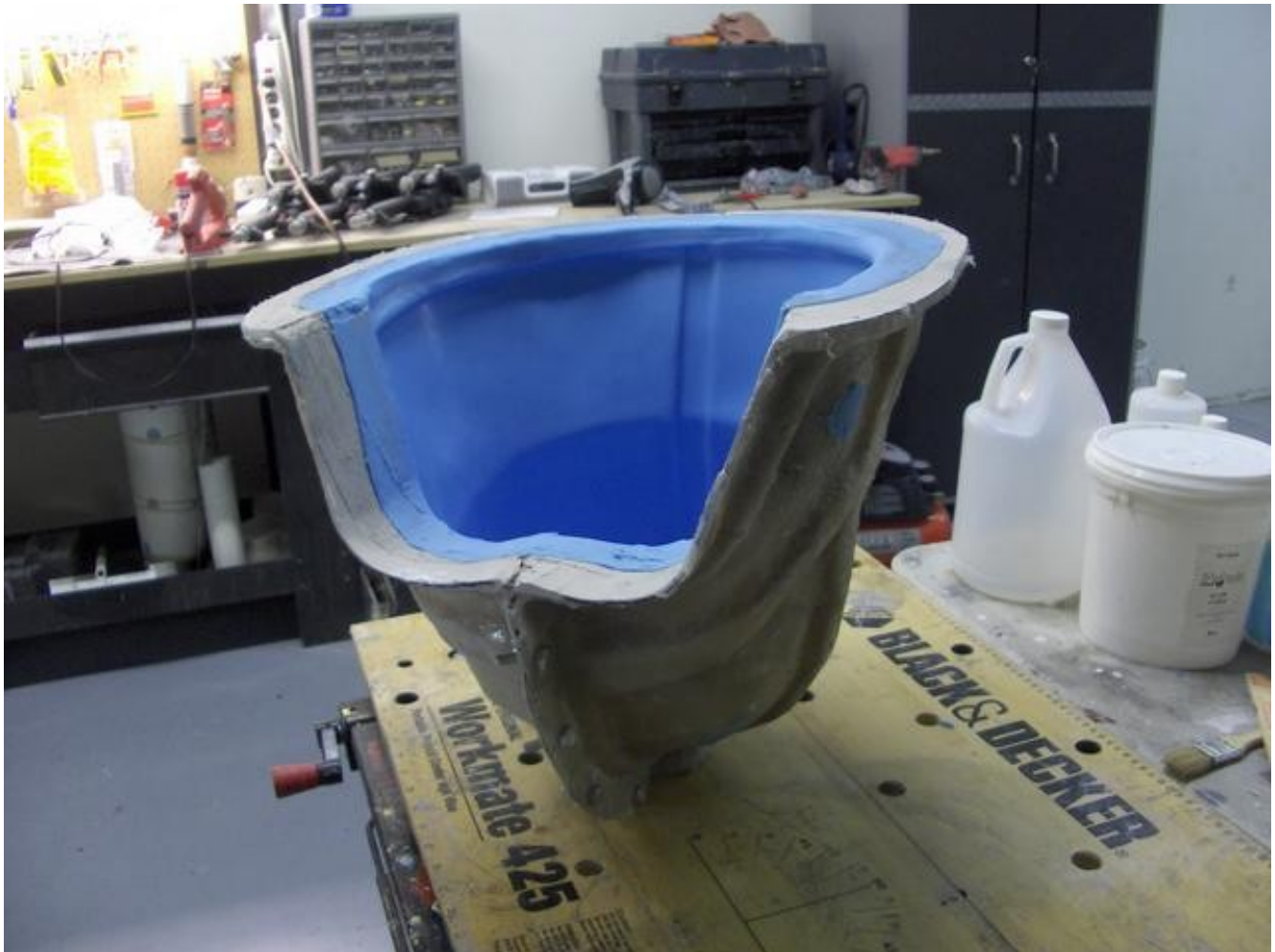
V71

Darth Mold Part 2

Well,...

On last week's episode entitled: *Molding a Vader Helmet; Part one!*
We saw spine tingling action as the mold was finished!

When we were done, it looked something like this,.....



If you think of creating the mold as say,.....dinner, then the next part is most definately dessert!

Next up,.....

Casting a helmet dome

First, I clean out the silicone insert with alcohol, let it dry, (which doesn't take long, as alcohol evaporates quickly), and coat the inside of the silicone insert with a light dusting of baby powder, brushing it over every nook and cranny.

This helps prevent air bubbles.

Now you're ready!

And since you don't wanna just fiberglass right into the mold, you need a step one!

You need something to help capture the surface detail and in this case, it's a two part brushable resin called 1630.

It comes in a "gallon kit" which means a gallon of the "A" compound and a gallon of the "B" compound. One is milky white in color and the other is black.

They mix in equal parts, either by weight or by volume, and in whatever quantity you feel you may need to coat the inside of the mold.

You'll need an electric mixer, ie: a drill, (with a cord, NOT battery operated), and a mixing head.

You **cannot** mix 1630 by hand. You'll be there till your grandchildren are in college, trust me.

So,....mix up the 1630, (50/50 ratio), and dump it into the mold! Now you take a chip brush, (30 cent cheapie one from Home Depot, OSH, or Lowes), and brush the resin up the sides and into the undercut of the brow ridge.

Coat every inch of the mold as completely as you can and then let it set.

This takes about 20 minutes, give or take.

What you get is this,...



Next up,....

Fiberglass Mud!

Yep! More mud. Which, as you should know by now is a mixture of Cabosil, (Resin thick), and fiberglass resin that forms a jelly-like mixture.

Mud is very important in filling areas that the fiberglass weave will have trouble getting into,....in this case, the undercut along the edge of the helmet and especially the brow section, which is a very deep undercut.

So,.....mix in a few drops of fiberglass resin into a cup of mud and then brush the stuff into the corners, into the lip of the helmet and the brow. Once that's done, start glassing!

Do NOT wait for the mud to dry!

Just start right away. You pick up a piece of fiberglass weave, give it a coat of resin, slap it into the mold, soak it with more resin and tamp it down.

Continue this, overlapping the patches until you've covered every bit of area inside the mold!

The result,....



Now drying time may vary depending on heat and humidity, so basically just keep an eye on it. If it's tacky, leave it. If it's dry as a bone to the touch, you're good.

Now,...this goes without saying but you need to do this in a well ventilated area. Fiberglass is heavy on fumes and toxic. Use a good respirator and latex gloves. Keep acetone on hand for cleanup and for soaking your brushes after every step.

Next up,....

Pulling the piece!

Seperate the two halves of the jacket, work your fingers up under the lip of the silicone insert and gently roll the mold up, working it gently and patiently as it peels away from the newly cast helmet underneath.

Take your time with it. The things not going anywhere.

Once the insert is off, drop it back into the jacket and take a look at your newly cast Vader helmet dome!



Next,....

Trimming the excess!

Just what the title implies! Don some gloves, a respirator and get out your *Dremel* with it's sanding wheel!

Do it outside, there will be a LOT of fiberglass dust. You do **not** want to breathe this stuff in! Bad! Bad!! Bad!!!

Take your time, pay attention to your edges and craft that baby into shape.

You should have something that resembles this!



Now that THAT'S out of the way,.... On to the facemask! Well,....as soon as I can get to it, that is,.....

MORE TO COME!

Sean

Darth Vader part 3

Well,...

Now that we got the Samurai dome out of the way, it's onto the easier, (well, relatively), part.

THE FACEMASK!

Thankfully, I started documenting this one from the beginning, so I can

show you what I had to tediously **explain** in the first part of the helmet molding post.

First up,.....

Sealing it up!

You gots' ta plug up the eye-wells, mouth and chin grate, as well as the top of the connecting ring, which is hollow PVC.



In this case I did it with foamcore.

BTW,....before I get a billion e-mails and observations about the mask being a little warped and lopsided,...I KNOW.

So was the original. It was hand sculpted in record time so whatever flaws the originals may have had, so did this one and unless I wanted to resculpt the whole thing from scratch, (which I didn't), I fixed all that I could short of redoing it, and the dome will hide the rest. When it's together and especially when it's painted, you don't notice AT ALL.

Here's a reverse angle!



next,.....

Building the mounting wall!

Now I have to build a wall that the helmet will sit on. I do this with foamcore as well as well as cutting a flange for the neck mount.



Next up,...

Starting the clay coat!!!

I secure the helmet onto the molding board, glue the foamcore wall securely down to the board from *the inside of the mask*, then claying up the seam and finally gluing the foamcore neck-mount into place.

Then I cover the mask with plastic, (in this case, a kitchen trashbag), roll out the slabs of clay on the rolling board, cut it into strips, and begin the clay coat.



After some quality shaping time,.....the clay-coat is done!

Well,...almost...



Now it needs to be smoothed out, the keys have to be put onto it and the fin needs to be added!

But !,....

I,.....haven't,.....done it yet....

MORE TO COME!!!!!!!!!!

Stay tuned, lads!

Later!

V71

Darth Vader 4

Well,...

Spent some time in the shop today,....had to go in late in the afternoon as it was just shy of 100 degrees here today,.....just about 90 in the shop so you gotta pick your time, y'know?

When we last left the Facemask it had a complete clay coat on it.

Like so,....

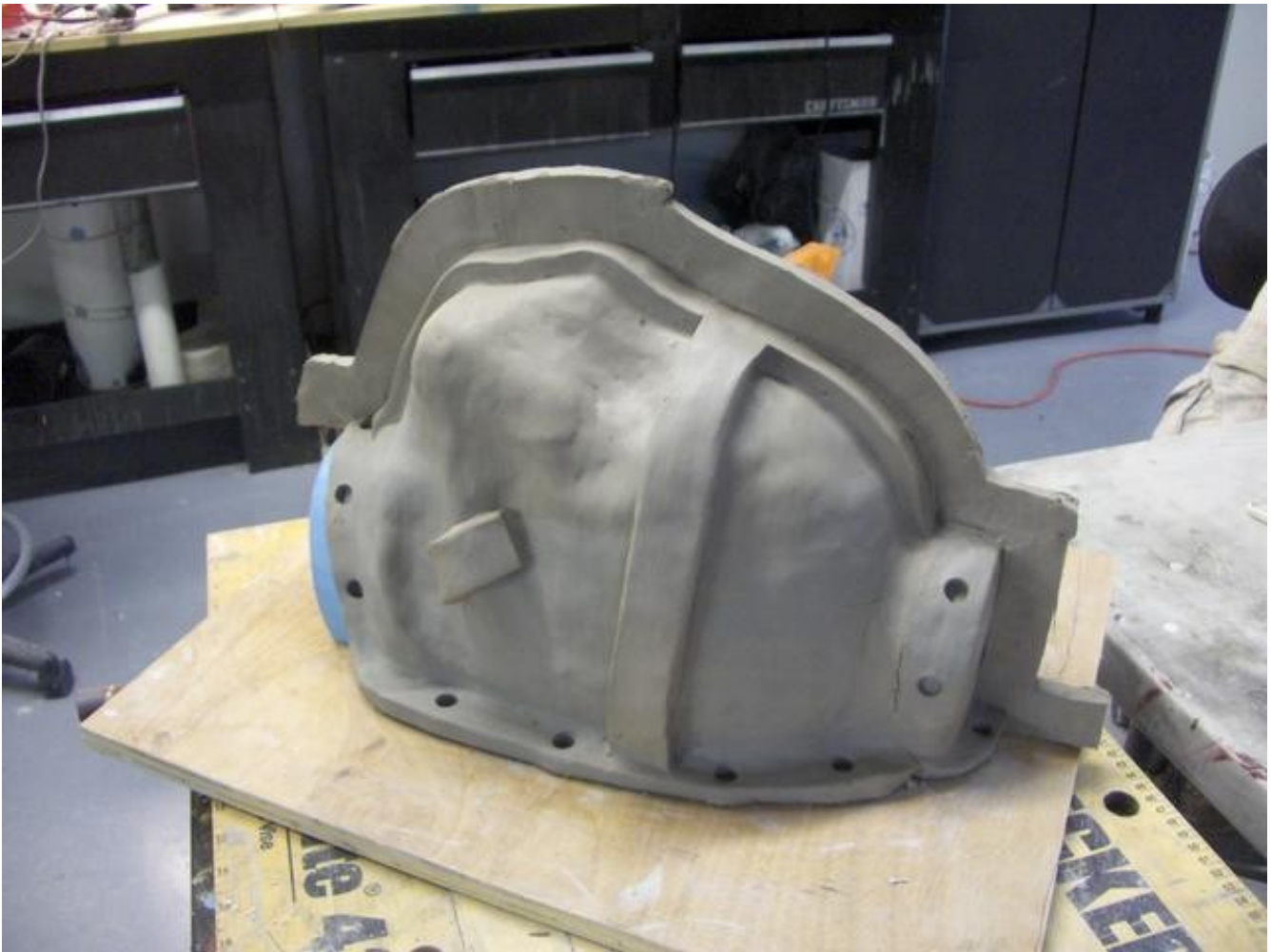


So here is the next step,.....putting the keys in! Take a gander!



The keys will, of course, help it sit tight and correctly into the jacket with no slipping around. Assuring a clean and unwarped casting every time.

Next up,...putting the fin on to bisect the jacket. Here it is!



Next up,....

The bondo coat,as referenced in the *Molding a Vader Helmet Part one* thread. This is what it looks like.



Once it's almost dry, (the consistency of soft leather), I trim the bottom edge for so it's nice and clean.



Now comes the mud coat,....also as referenced in *Part one*



Now we come to the fiberglass jacket....both sides!



Now,...once the fiberglass is dry, you drill bolt holes along the length of the fin and seperate the two halves of the jacket.

Clean out the clay, wipe down the inside of the jacket with alcohol, then drill your air and spy holes.



Fit the mold back over the facemask, bolt it down to the molding board, bolt the jacket back together, and seal the seams, (around the base, collar and up the fin), with hot glue.



seal the holes with heavy duty adhesive tape,....



Pour the silicone! Watch for leaks for the first few hours!



The mold is drying in the shop right now, so more to come tomorrow!

Later!

V71

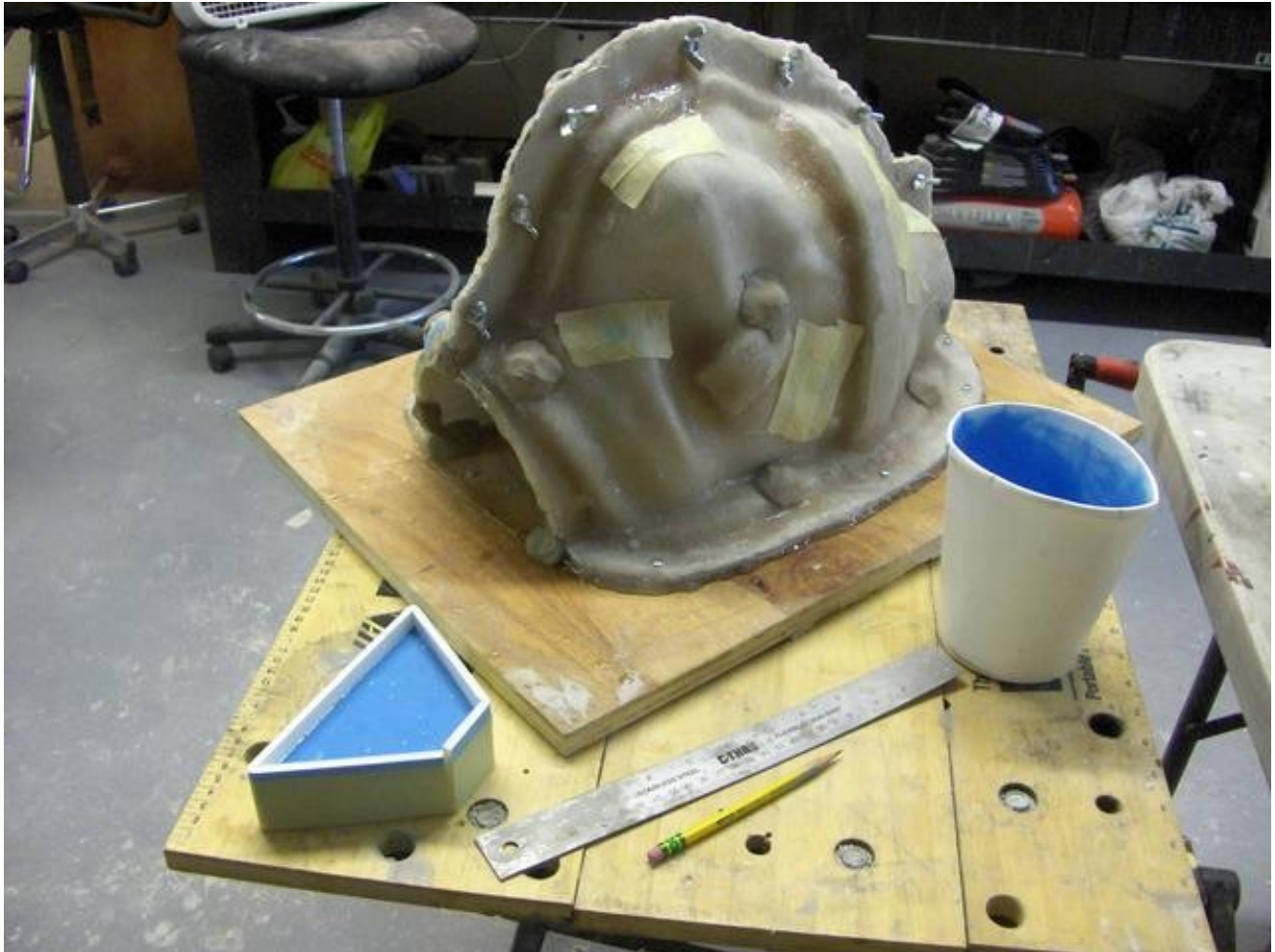
Darth Vader 5

Well,....

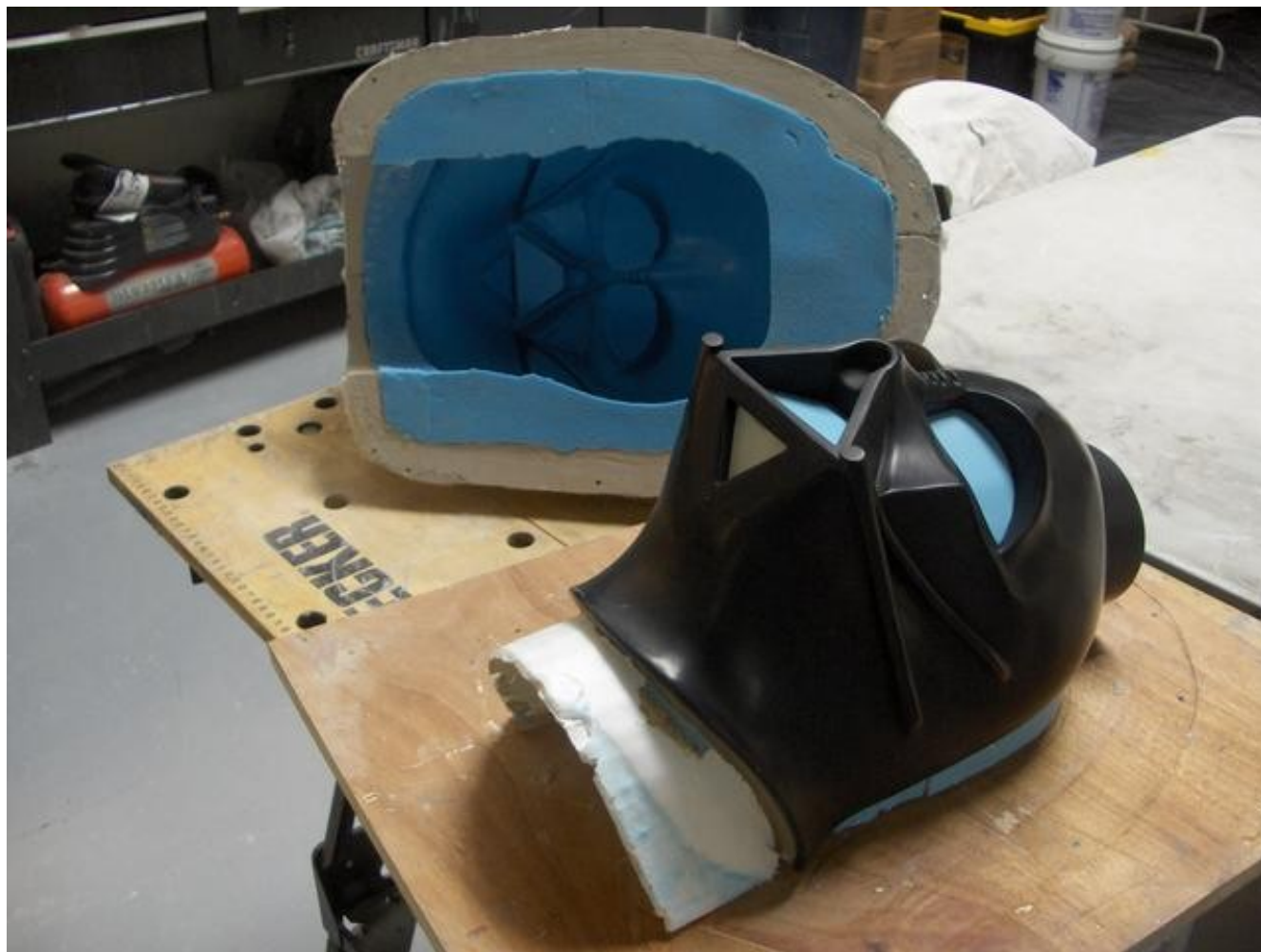
Finally,.... You folks that have witnessed this journey from the beginning now get to see the culmination of all of this crazy shit!

When last we left,.....the silicone had been poured and the mold was curing!

Observe! For memory refreshment purposes!



Today, (well, technically, midnight last night, cause I couldn't wait), I went to the shop and pulled the mold!



Man! That foamcore collar is just about done!

Now,....if ya wanna see how I did the fiberglass casting, refer to part one of the Vader Helmet tutorial, but for those that know what I did,....here's the results!



A nice, clean cast, and as you can see,....I've started drilling out the eyes and mouth! .

FYI,...the top portion is PVC tubing, (I think it's 3 in.), slipped into the mold and molded directly into the facemask itself.

After this,...I take the coupling ring that fits this pipe, (also PVC and in the same section that you'd find the smaller PVC), and test fit it over the facemask, hit the edge of it with hot glue, and set it into the dome for a fitting.

Once it's set a bit, I slip the facemask out of the coupling and secure the remainder of it in there with hot glue for the time being until I can do another resin coat for the inside of the dome and seal it in there.

I cast up the mouth grate in resin, and voila,.....



A finished rough casting of a David Prowse-sized Darth Vader helmet, ready for finishing and painting! And **that** is how you do it! Hope you guys enjoy!

Later!

Sean

