

3D printed kit tutorial

8th June, 2019 edition

- 1.1 Removal of burr
- 1.2 Texture elimination
- 1.3 Glue
- 1.4 Painting
- 1.5 Other tips

1.1 Removing the burr

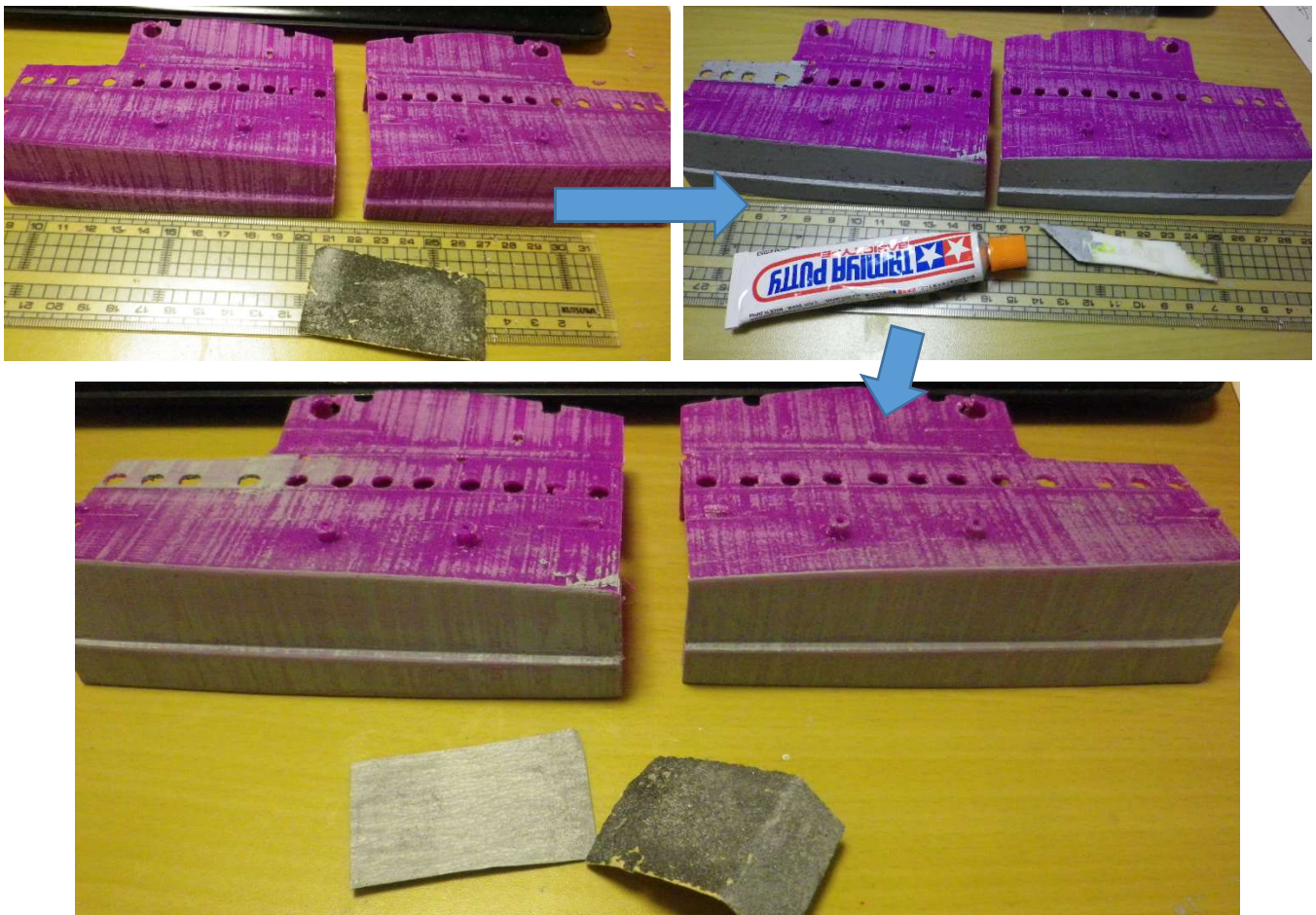
My current 3D printed parts has some burrs. Especially, inside fuselage. Please remove the burrs by sand paper or carving knives. Fuselage burr removal is the most important process before kit erection. I' m sorry for the low quality. In the future, I will purchase better 3D printer.

1.2 Texture elimination

3D FDM fabricated surface is full of texture, which is the most serious problem. I include sand paper set. But just sanding before painting is really time consuming and low efficiency process. Therefore, following methods will be more efficient than just sanding!!

1.2.1 Sanding with filler material before painting

It can fill 3D printed texture and shorten sanding time. Please be careful of surface mold.



1.2.2 Thick painting with sanding for small texture

Multiple times of spraying (paint or primer) can eliminate small texture as well. In this case, please **repeat a few times** of spraying and sanding cycle. Then, small texture will be vanished efficiently than just sanding.

As for interior parts, texture is not conspicuous from window. Thick painting by paint brush can vanish texture as well.

1.2.3 XTC-3D resin coating



XTC-3D is a kind of resin coating. But it is not easy for beginner. **XTC-3D with IPA need experience or skill. Beginner should not use it without training with sample parts, otherwise sacrifice parts.**

XTC-3D coating process is as follows.

- Mix A and B liquid about a minute. A volume should be 2 times of B. Then, it become very thick liquid.

- Add alcohol and stir the mixture

Pure XTC-3D is very thick liquid. And cannot paint smoothly. So alcohol such as acetone or IPA is necessary. In this time, paint is possible to mix!! In my experience, I added alcohol same amount with XTC-3D (A plus B liquid amount).

- Spread mixed liquid on aluminum foil quickly, otherwise it get very hot and harden very quickly because of chemical reaction. Spreading can longer cure time of the liquid.

- Coat by painting brush within 20 to 30 minutes.

Be careful of coating thickness distortion. And paint brush is one time life only!!

- Drying

When drying, coated area should be nearly horizontal, otherwise thickness will be distorted.

Caution: Be careful of harmful gas. You should not breathe in gas.

Please wear protective gloves.

Please refer these YouTube links.

<https://www.youtube.com/watch?v=GSKxycs3kPg>

<https://www.youtube.com/watch?v=1XSrPBrOGVE>



Surface example

1.2.4 Sticker

I sometimes include exterior sticker to cover texture. Sticker can cover texture and eliminate painting process in the area.

- I always use the Silhouette Cameo sticker, not water slide mark.
- The plotter is impossible to cut very small shape. So I omit very small part.
- Most of stickers do not have clear film. These can be laminated like normal seal.
- As for sticker with clear film, please stick on the surface like the followings. In order to keep thin sticker shape when sticking, clear film would be necessary.



Sticking example



YS-11J example: Side fuselage is covered by sticker.

I' m confident that such disadvantages will be solved by printer development!!!

1.2.5 Other methods

Acetone coating or acetone vapor box are bad method for my kit because each parts will be distorted very much.

1.3 Glue

ABS, HIPS and PS parts

PS glue, which contain acetone, can use for ABS, HIPS and PS parts. From my experience, ABS adhesion take longer time than PS. Moreover, slushing type glue is much better. From the following image, green left one. When bonding, please stick tight about 10 to 20 seconds. It would take 1 to 2 hours to dry out.

I do not recommend thick liquid type glue, which is another one in the attached picture. It can melt ABS as well but melted area get weak and easily be ripped off. If you want to use this glue, interior parts are suitable.

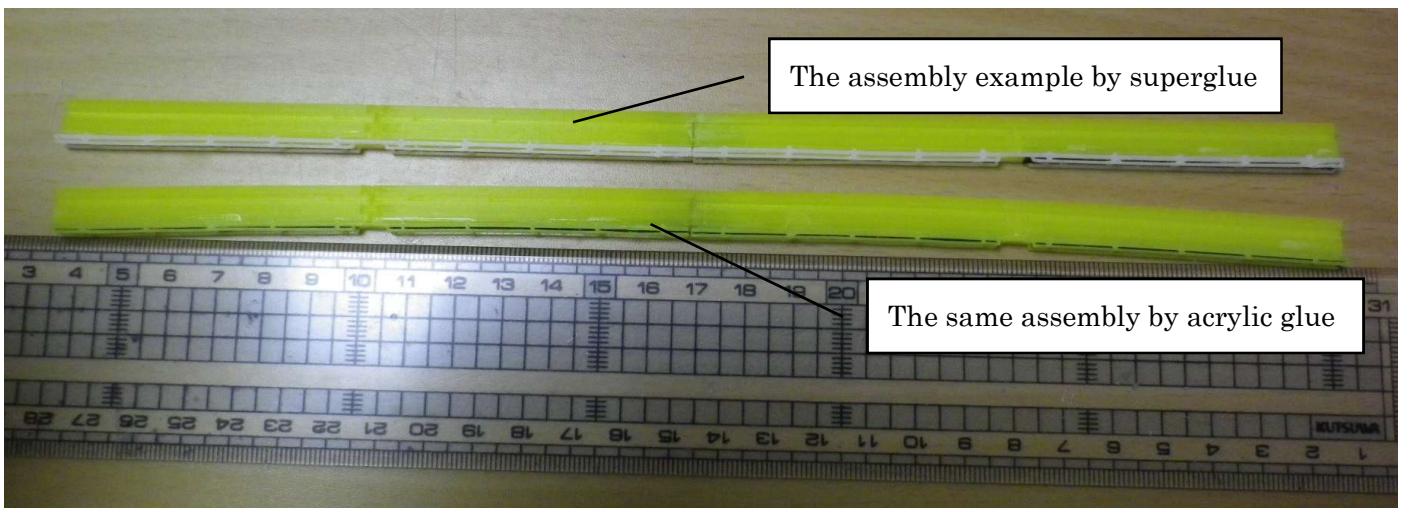
When glue small or narrow area but want to be strengthen, or want to save time, superglue is better than PS glue.



PLA parts



Very strong instant glue (and acrylic glue) is necessary to assemble PLA parts. PS cement cannot glue PLA. Be careful of using acrylic glue. It can glue PLA but too much amount would cause parts distortion like Fig1.2.2. Acrylic glue should be minimum amount and thick parts only. When building small or thin parts, very strong glue is the best method.



1.4 Painting

When painting, please use proper primer that does not erode ABS material at first. For example, these following primers are suitable for ABS surface coating.

- 'Nylon/PP Primer' by Tamiya
- 'Mr. METAL PRIMER-R' by Mr. Hobby
- 'Multi Primer' by Gaia

After that, painting process will be same with major injected scale model kits process.

But as for PLA parts, painting directory on PLA surface is possible. HIPS surface, solvent crack will not occur when painting.

1.5 Other tips

• Some 3D printed parts have distorted, shrunken, cracked portion. Please fill by putty if it is conspicuous. I make an effort to minimize distortion when printing and improving my printing skill little by little.

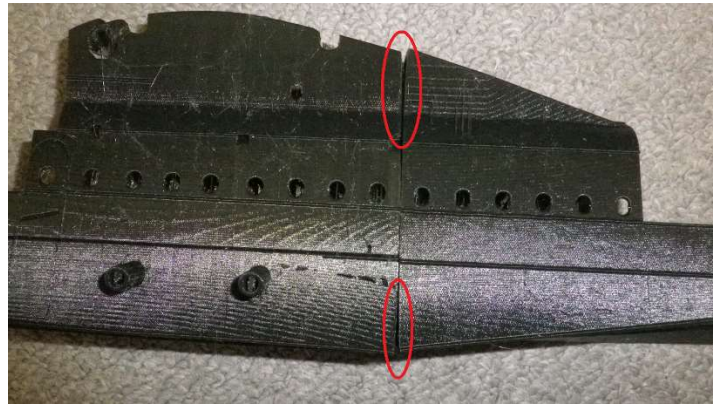


Fig1.5.1 My 2016 old model example. But 2019 kit level got much better!!

- Please keep or treat PLA parts within **50 degrees** Celsius environment.
- PLA is **ecological material and easily be decomposed** by microorganism. Do not put PLA parts into sand or water, please.
- **Painting on PLA surface would be effective** to prevent decomposition.
- **Sealing up PLA parts with silica gel would be effective** to prevent decomposition.
- 3D printed parts is **weak at lamination layer** direction like Fig1.5.2.

