

Gluing PMT light guides

This procedure is a part of the FCAL 2 module fabrication OSP (ENP-20-98871), which is amended to the temporary location of the FCAL 2 lab in EEL 126

Originally prepared by A. Somov on March 5, 2020

Ultra violet light source will be used to cure the UV glue for mechanical coupling of photomultiplier tubes and acrylic light guides. The curing will be performed inside **a shielded enclosure of welding screens. Appropriately rated safety glasses and nitrile gloves will be required.** UV area signs will be posted.

1. Make sure that the welding screens are properly installed (Fig. 1) and safety glasses are available near the curing station (Fig. 4).
2. Clean the photo multiplier (PMT) face with isopropanol and insert it inside the gluing fixture, slide the PMT up from the bottom as shown in Fig. 2.
3. Make sure that DYMAX UV glue is loaded to the syringe, see Fig. 3.
4. Apply one drop of the glue on the PMT face.
5. Make sure that the light guide surface is clean (clean the LG face with isopropanol and wipe it with a dry towel).

6. Slide the light guide from the top and put in contact with the PMT. Make sure that there are no air bubbles in the glue between the PMT and LG.
7. Switch on UV gluing tool, see Fig. 4. Make sure that you wear safety glasses.
8. Press the foot pedal on the UV machine to switch on the UV light. Cure UV glue from the top and two sides (Fig. 5 and Fig. 6). The typical light exposure time is 6 sec for each side.
9. Slide the PMT with LG to the bottom of the fixture, see Fig. 7.
10. Inspect the gluing joint, attach the PMT label, wrap the PMT with the bubble wrap, and place it into the PMT box.



Fig. 1 Screens for gluing enclosure.



Fig. 2 Gluing fixture with inserted PMT.



Fig. 3 DYMAX glue loaded to the syringe.

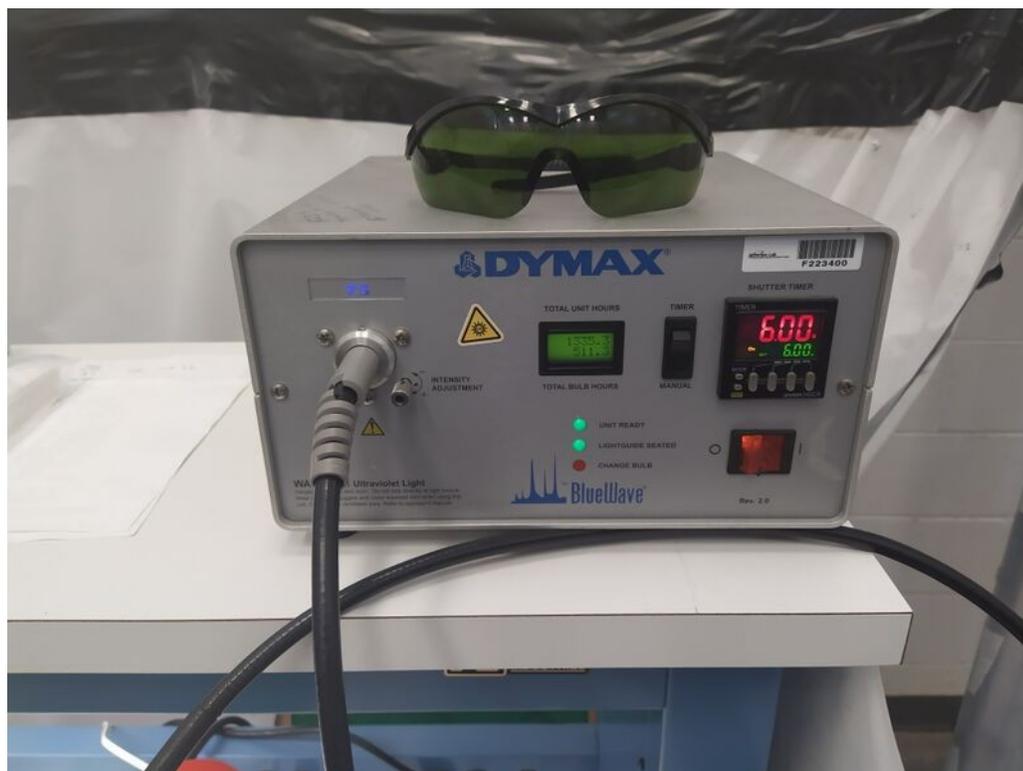


Fig. 4 DYMAX BlueWave curing tool (safety glasses are positioned on the top).

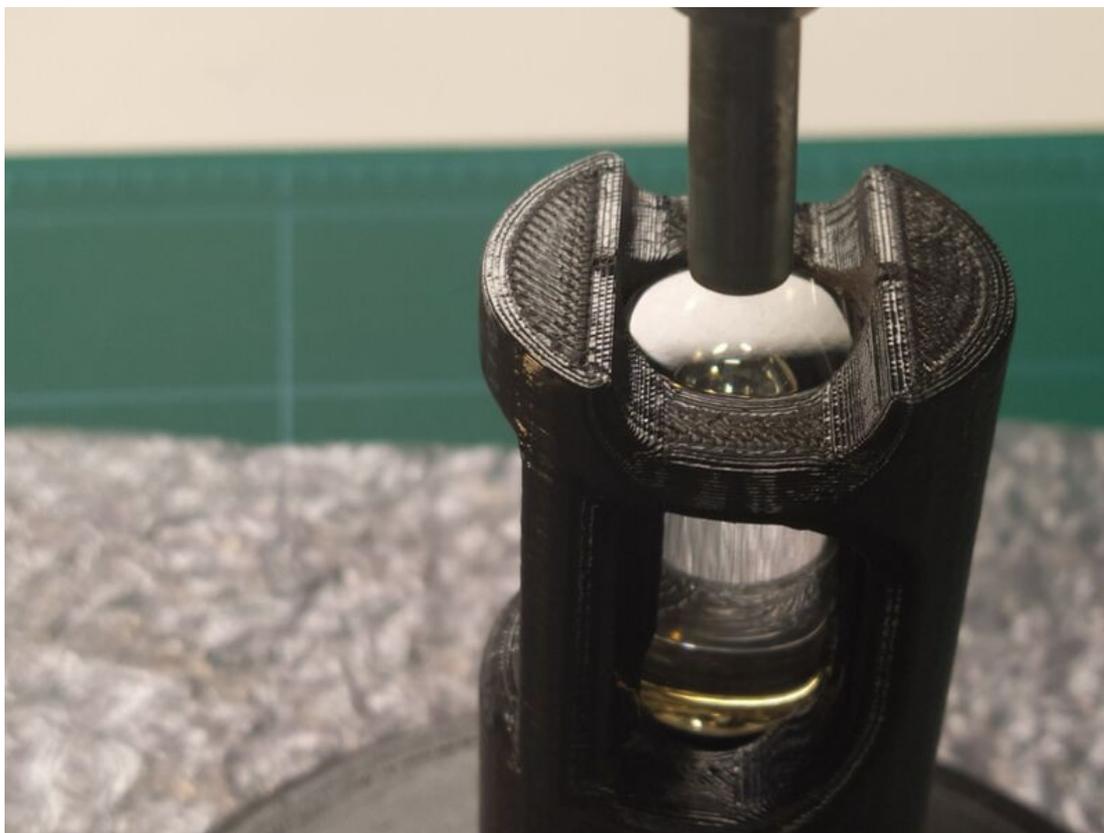


Fig. 5 Cure UV glue from the top of the light guide.



Fig. 6 Cure UV from the sides.



Fig. 7 Light guide glued to the PMT.