GlueX-doc-1726

27-April-2011

C. A. Meyer

**CDC Construction Status:**

Phase one of the CDC construction results in the chamber frame and inner shell assembled and mounted on the construction mandrill. This task about 65% done, with all parts accepted and ready to be assembled as soon as final glue checks are completed.

The following table lists the parts that are needed during the first two phases of construction of the CDC. Original estimates for delivery of parts (inner shell, straws and plastic donuts/feedthrus) were early be several weeks.

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| --- | --- | --- | --- |
| Part | Date at CMU | Status | Ready to Use |
| Al. Donuts | 1-Apr-2010 | Checked and cleaned | 6/20/10 |
| Al. Feedthrus | 1-Apr-2010 | Checked and cleaned | 6/20/10 |
| Plastic Donuts | October | Checked and cleaned | 11/24/10 |
| Plastic Feedthrus | October | Checked and cleaned | 11/24/10 |
| Pin holders | October | Check/clean (arrived 11/2) | 80% ready |
| Crimp pins | 7-June-2010 | Checked and in clean storage. | 6/15/10 |
| Al. Endplate | 1-May-2010 | Reamed, cleaned and ready. | 7/10/10 |
| Cfib. Endplate | 1-May-2010 | Reamed, cleaned and ready. | 6/22/10 |
| Support Rods | 1-May-2010 | Installed | 6/22/10 |
| Straws | 23-Sept-2010 | 1900 arrived, 100% checked | 10/20/10 |
| Straws | 29-July-2010 | 250 Sample Checked & Accepted | (250) now |
| Inner Shell (good)  Inner Shell (test)  Installed | 15-July-2010  20-July-2010  20-Sept-2010 | Cleaned, finished end  Glue tests completed  Installed | 7/15/10  8/15/10  9/20/10 |
| Stringing Mandrill | Made at CMU | Finished, cleaned | 7/10/10 |
| Frame Bolts | 10-Sept.-2010 | Installed | 10/15/10 |
| Spacer Rods | Made at CMU | Installed | 10/15/10 |
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As of 01 November the CDC frame has been fully assembled on the mandrel and the endplates are aligned to within 2 mils. The chamber is in its vertical stringing position and ready to install straws. The final installation and gluing procedures need their final optimization before full-scale installation can start.

As of April 1, 2011 we are still waiting for the delivery of the following parts:

1. 2000 additional straw tubes (2200 are at CMU)
2. **We have run out of straws. The remaining straws are estimated to arrive in Pittsburgh around the middle of May.**

All plastic donut and feedthrus have been checked and cleaned and are ready to be used. We have started checking the pin holders and are about 85% of the way through the 8000 parts. These later parts are not needed for several months.

We have started manufacturing the hook-up wires to be used to connect the crimp pins to the pc board that mounts the HVB. At this point, around 800 wires have are cut and the ends that makes contact with the chamber are done. To complete the other end, we need the bushings and O-rings that are expected in a few weeks. We are estimating that manufacturing the wires represents 10% of the hook-up effort in the latter stage of the project.

Construction Issues Encountered:

1. Initial installation of the straws was stopped when we discovered that some fraction of the straws had surface resistances that were 5-6 times too high. It was traced down to a very thin aluminum layer and the vendor was notified and is checking the last shipment of straws. Careful checks seem to show that it is isolated to one of seven bundles of straws that we have. We have spot checked the others and used a full second bundle with no further problems.
2. As a result of this problem, 42 completed straws were removed from the chamber before gluing and another 24 had to be discarded. This issue resulted in about 1 lost week of effort.
3. Procedures have been changed to add additional checks on the straws’ conductivity before starting.
4. Even though it was checked and reamed in June, we are finding that we need to hand ream about 5% of the holes in the endplate. There may be some oxidation occurring. This is a minor annoyance.
5. We also have a minor hindrance in that some small number of Al feedthrus stick in the Al endplate and need to be tapped out. This is a minor annoyance.
6. As we start installing stereo tubes, we expect that other annoyances will be encountered. Minimal issues were encountered.

Conducting Epoxy Schedule:

40 10-gm packets arrived June 2010

100 10-gm packets arrived October 2010

100 10-gm packets arrived December 2010

15 2.5-gm packets arrived June 2010

40 2.5-gm packets arrived November 2010

60 2.5-gm packets arrived December 2010

100 10-gm packets arrived January 2011

CMU supplied manpower on the project:

Project Scientist: Naomi Jarvis

Curtis Meyer

Construction Manager: Gary Wilkin

Manpower billed to the project:

Technician: Amy Woodwell (since June 1)

Kaitlin Mueller (since August 15 ).

Undergraduate Students: Tom Charley (100%) (May 15 to on July 30).

Devin McGuire (60%) (June 1 to June 30)

Elizabeth Keller (10%) (Nov-Dec 2010)

Mason Blaschak (10%) (Nov-Dec 2010)

Aleksandar Popstefanija (10%) (Nov-Dec 2010)

Rahul Kurl (20%) (since November 2010)

Maddi Braumbaugh (since April 2011)