Steps for MINERvA decommisionning

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v1

Overview

- All of MINERvA is going to be disassembled to allow moving of MINOS
- Many MINERvA parts will be reused in the ArgonCube 2x2 prototype, aka “Proto DUNE-ND”
- We are saving **all the** PMTs, FEBs, FESBs, VME crates, CROC-Es, CRIMs and the MvTM
- **Care needs to be taken in removal**
- PMT/FEB/FE/cable removal by physicists
  - Point 14 of the instructions https://indico.fnal.gov/event/21541/contribution/3/material/slides/0.docx
- These slides accompany Howard and Steve’s procedures: https://indico.fnal.gov/event/21661/contribution/3/material/slides/0.pdf

Overview of task

- Get the master list of which FEB is where*
  - Check each FEB against the list: correct list when wrong
- Unplug and store the yellow and blue CAT5 cables connecting each FEB in each chain
- Unplug the gray FEB power cables
- Remove FEB, check FEB number, check against master list and store FEB
- Unplug the 2 black LI fibers
- Unplug the 8 optical cables and store them
- Remove the PMT, check the PMT number with master list, and store it

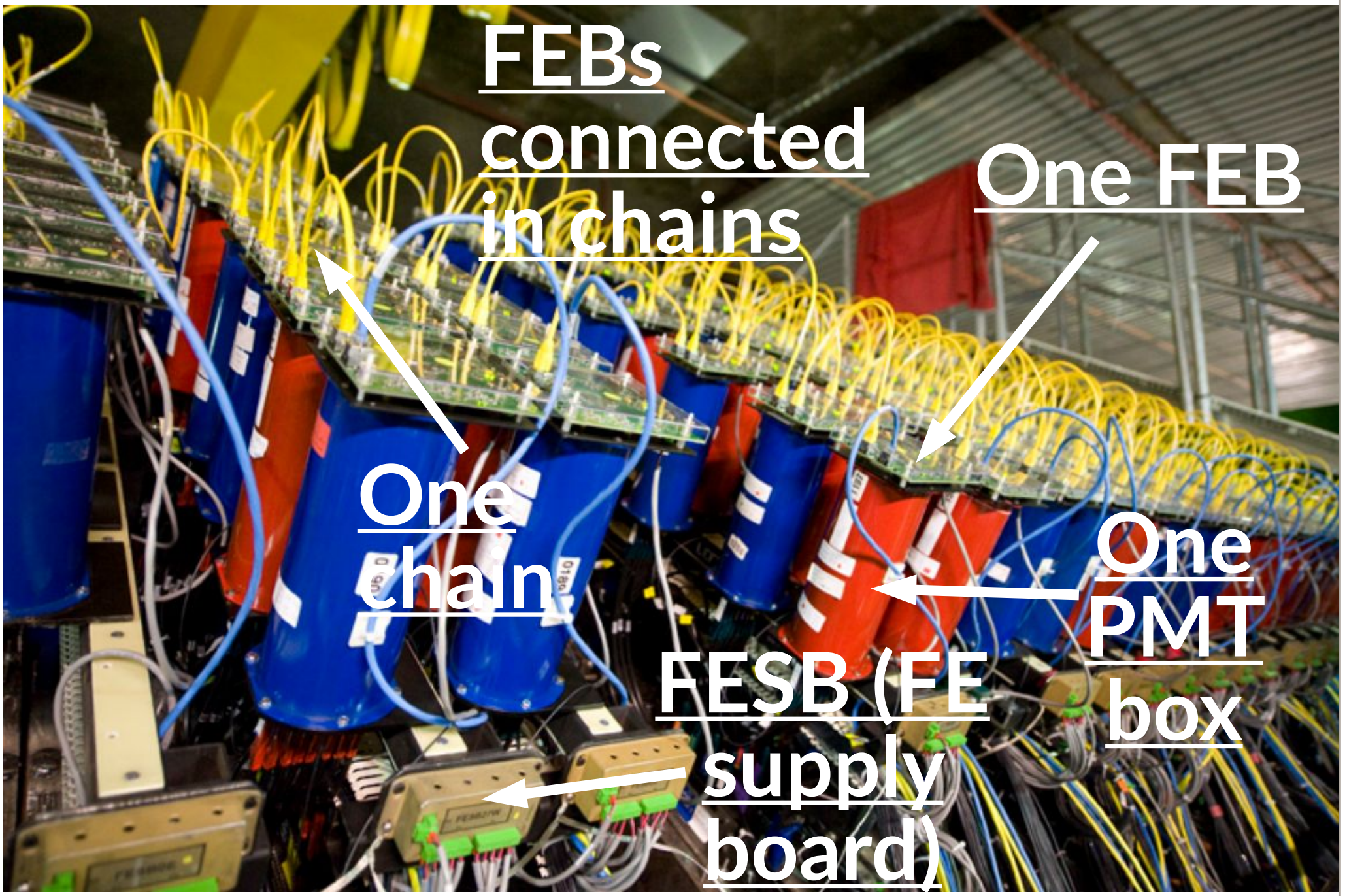
*https://minerva-docdb.fnal.gov/cgi-bin/private/ShowDocument?docid=4086

Overview of task

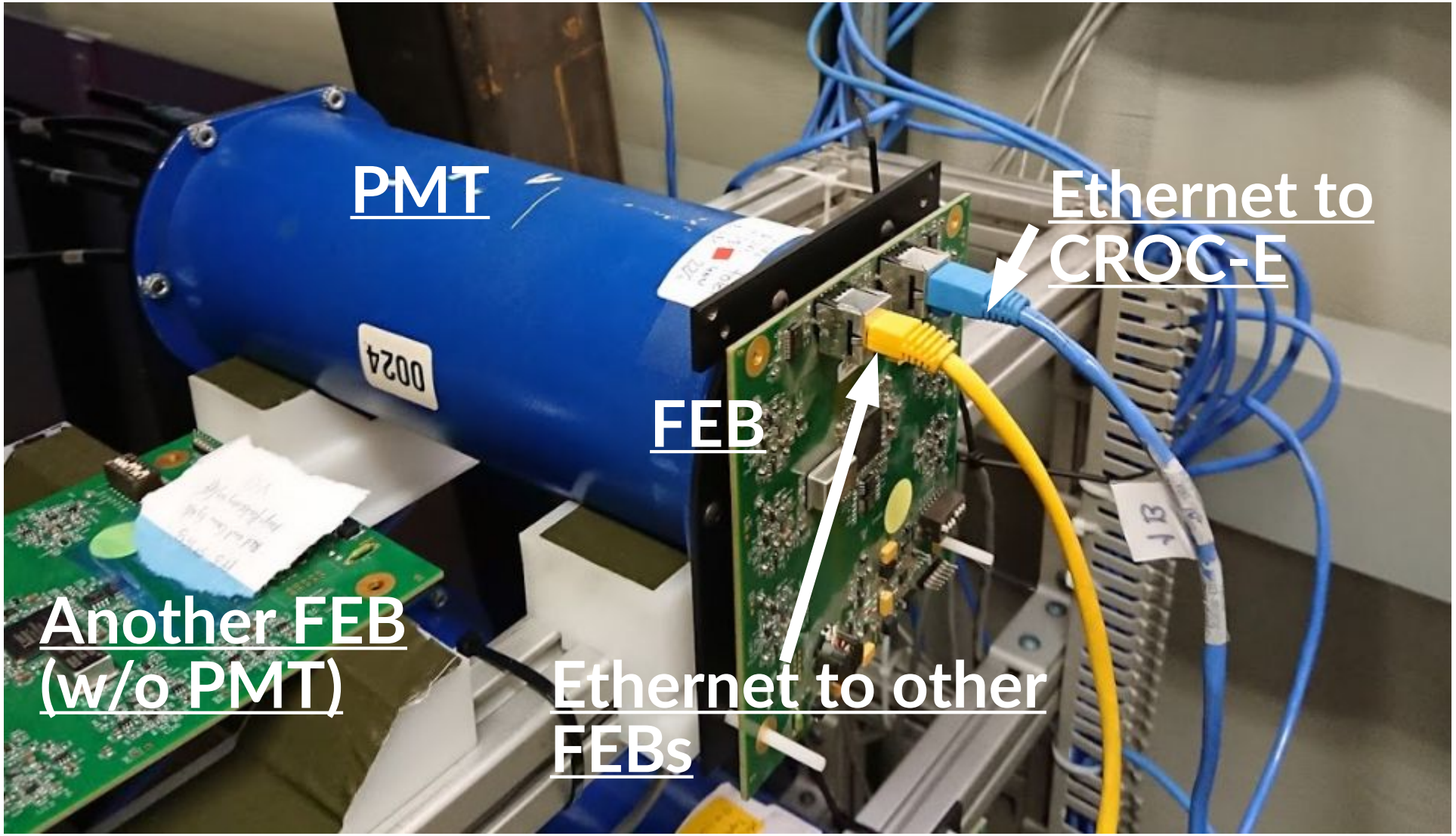
- Pull back the FESB power cables on east and west sides. Remove the power cables and label them
- Remove FESB power cable from the fuse box in the DAQ rack and store properly
- Remove the FESB
- Pull back the LI bundle to the LI box
- Remove the PMT unistrut mount

- Rack disassembly in separate instructions
  - Veto rack hardware won't be used
  - Main DAQ rack will be reused fully, LI rack depends on higher-level decisions on disassembly

Overview of chain downstairs

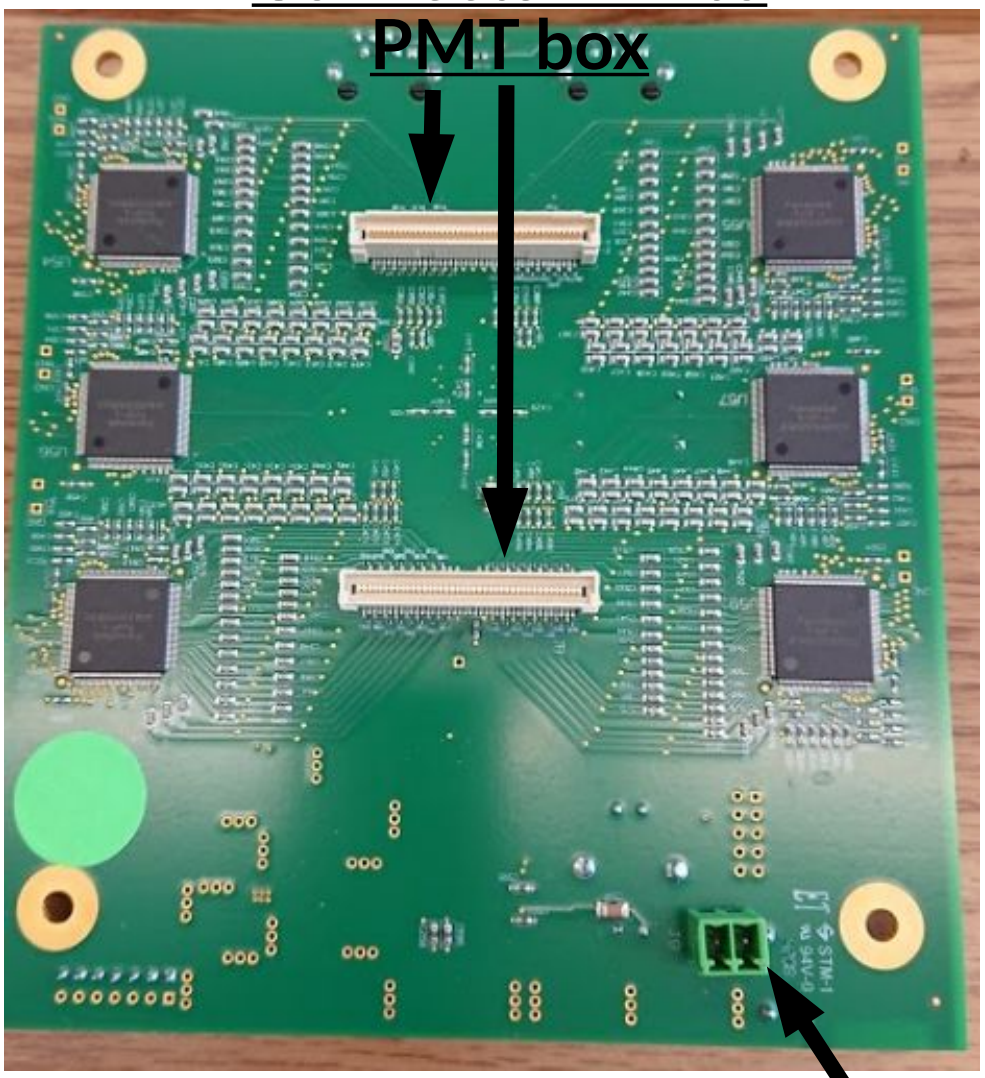


Overview of chain in test-stand



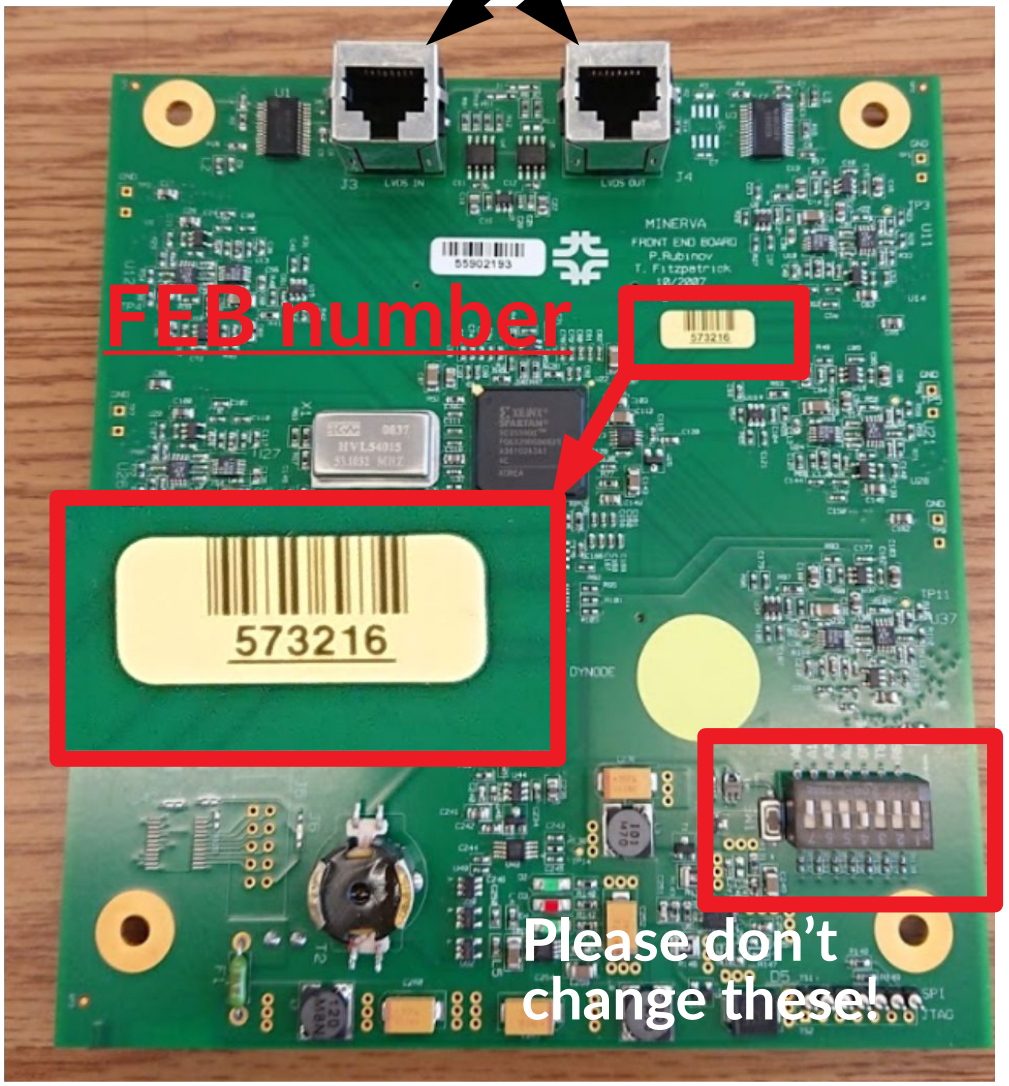
Overview of FEB

Connects FEB to PMT box

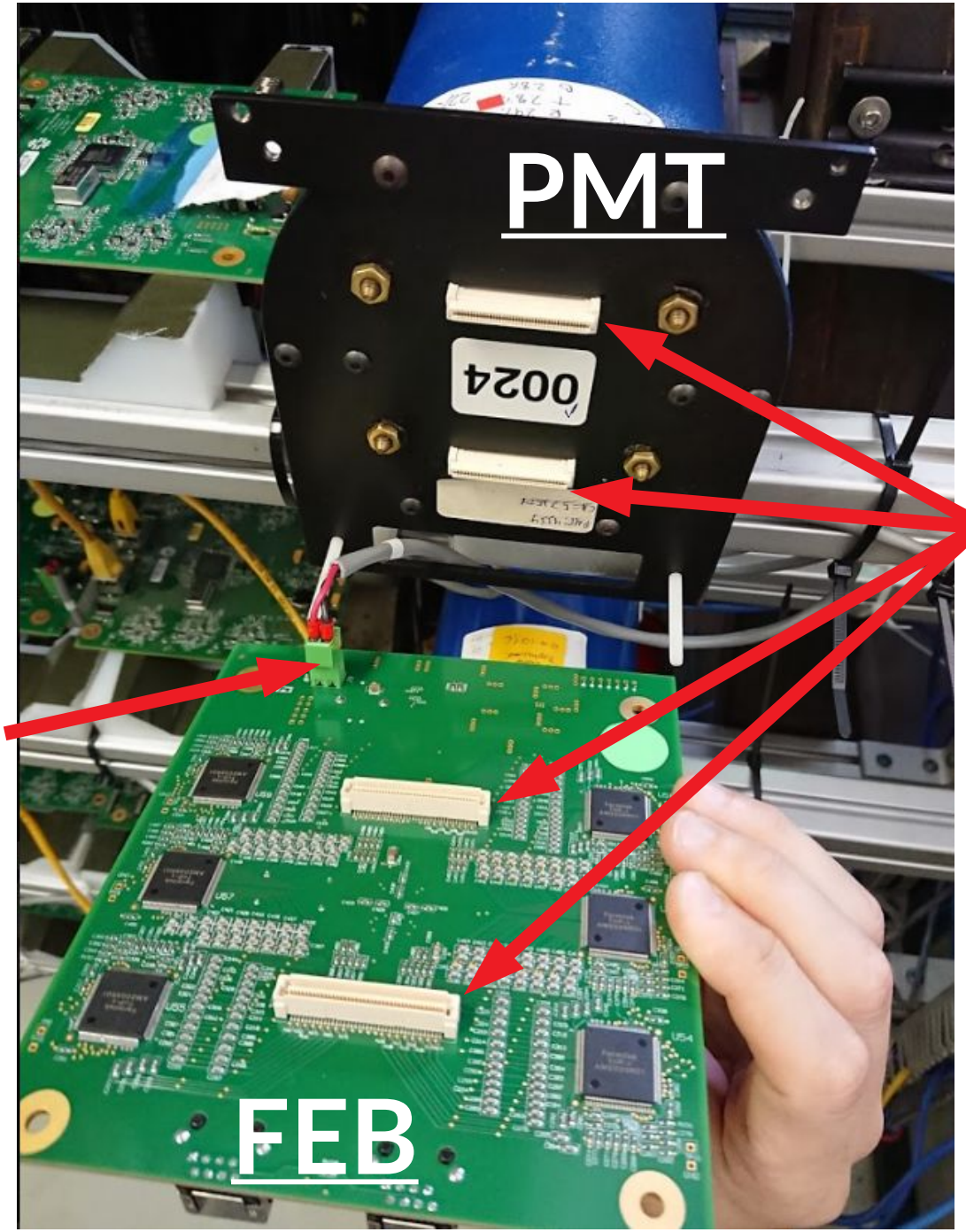


Delivers power to FEB from FESB

Ethernet connecting FEB to FEB or CROC-E



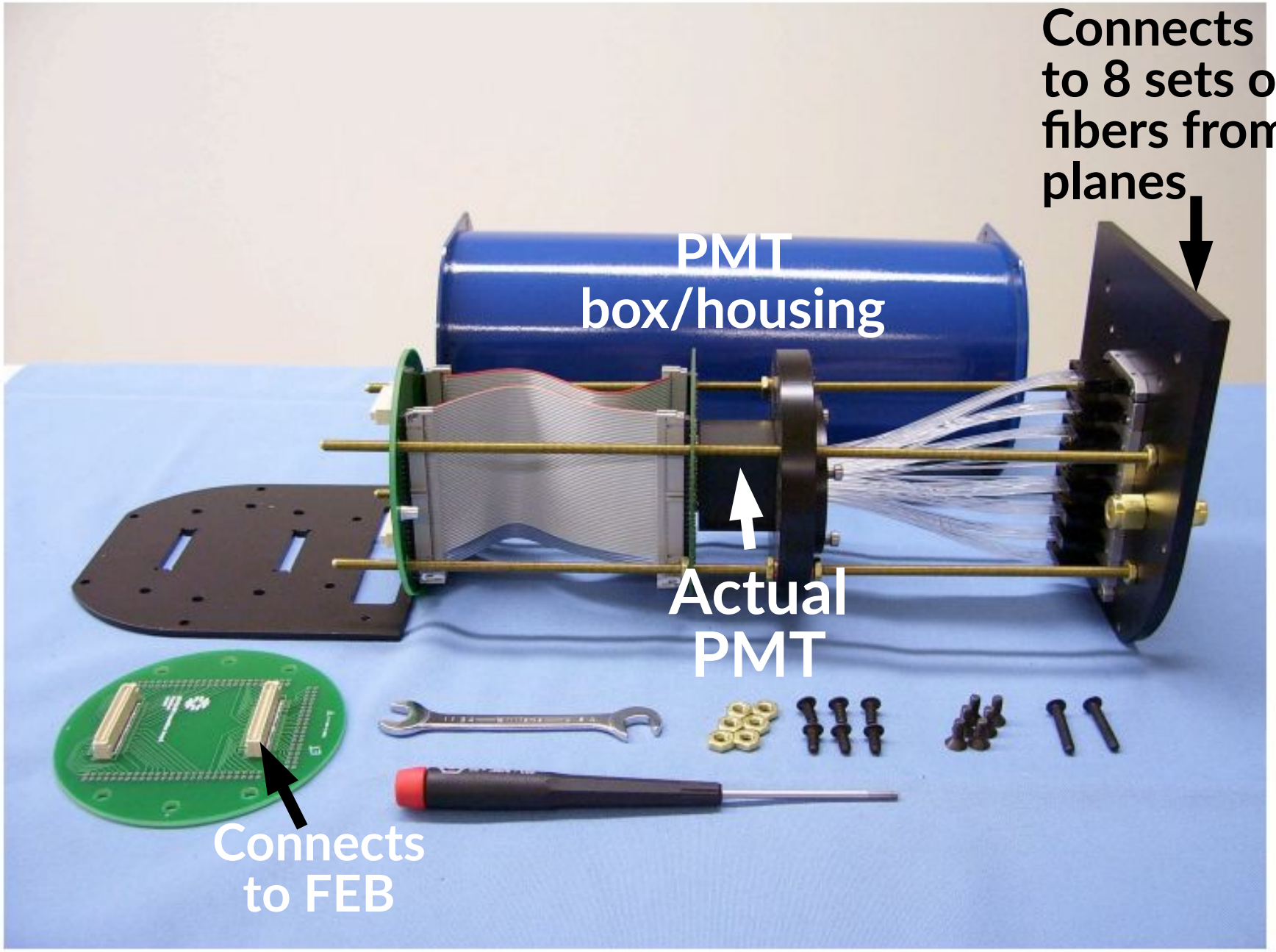
Overview of FEB/PMT connection



FEB/PMT connector

FEB gets power here

Overview of PMT box



Step 1

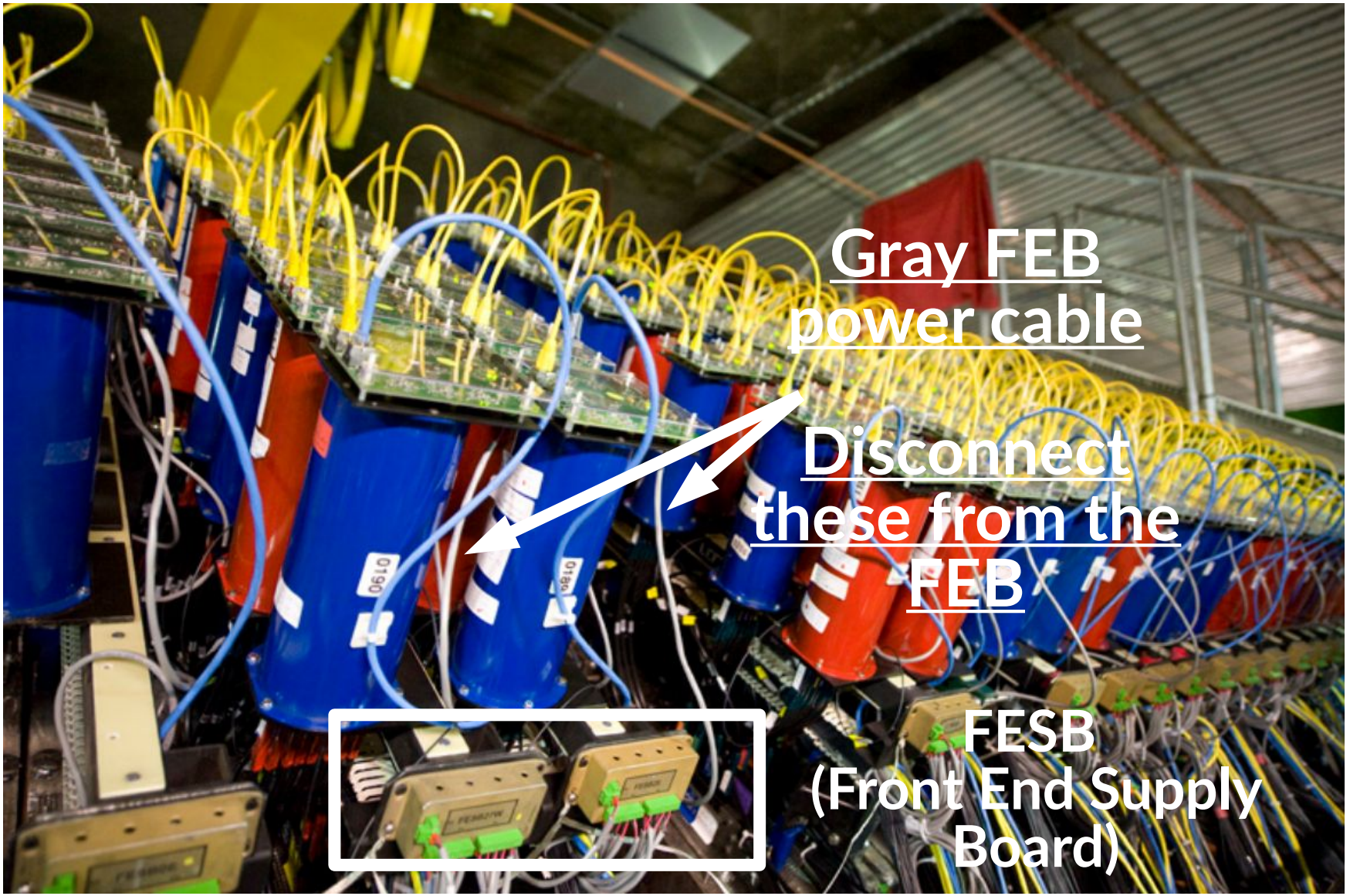
- Unplug and store the **yellow** CAT5 (ethernet) cables connecting each FEB in a FEB chain

Step 2

- Unplug the **blue** CAT5 cables connecting each FE chain to the CROC-E. These will be pulled back later

Step 3

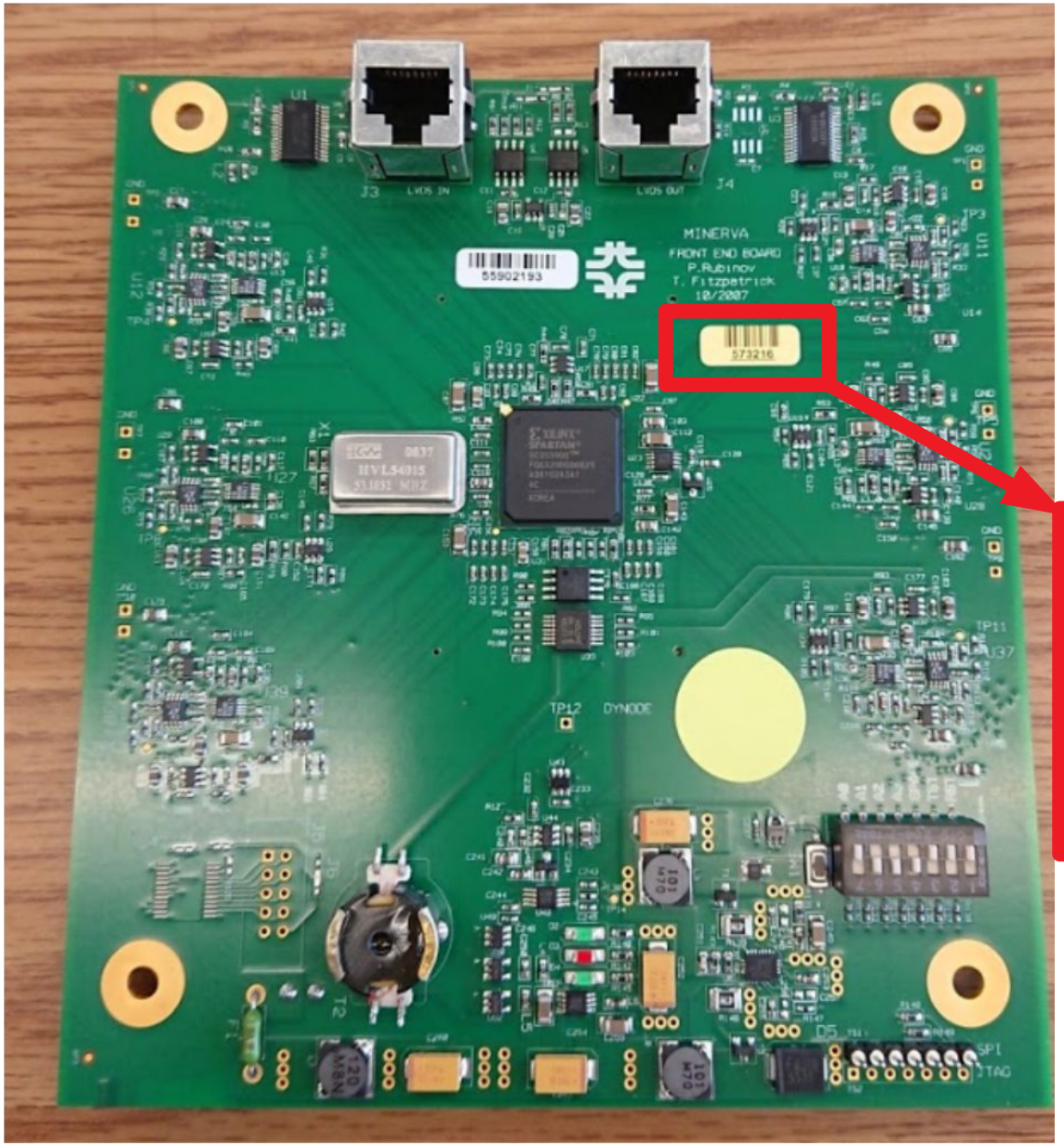
- Unplug the gray FEB power cables from each FEB



Step 4

- Remove FEB, check FEB number, check against master list, and store FEB

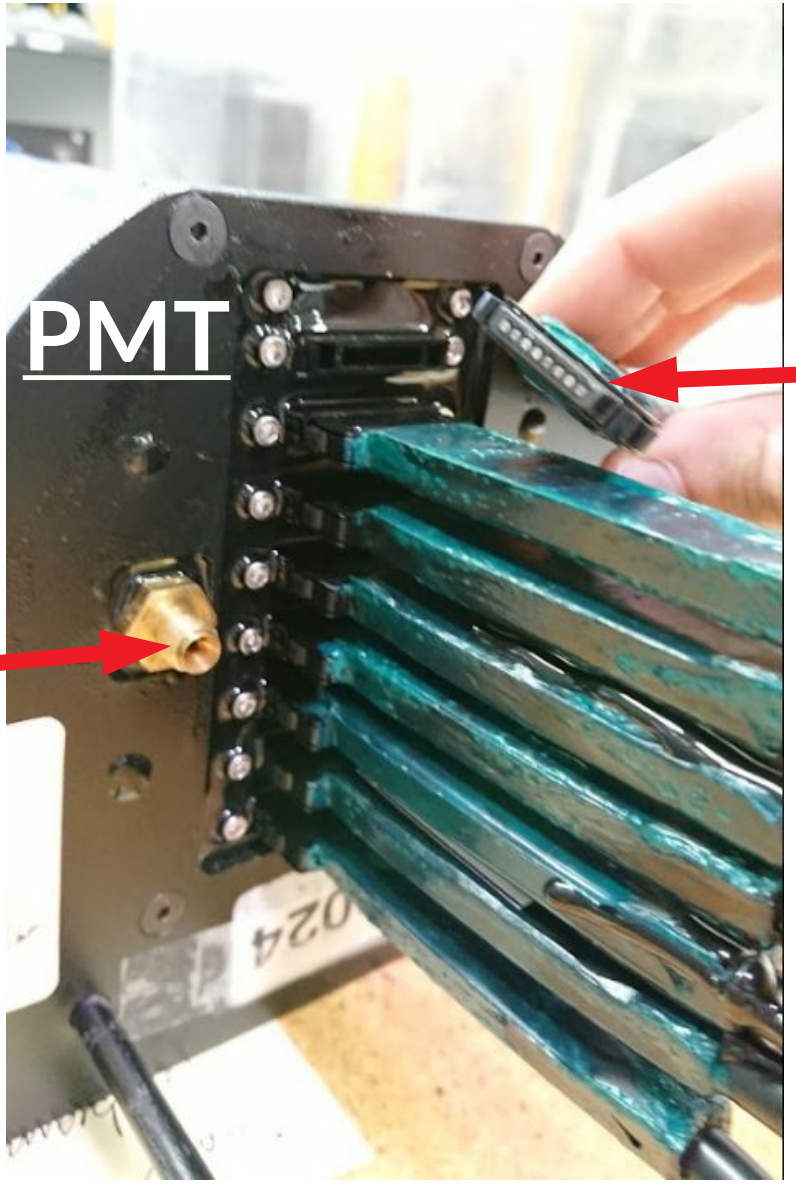
Check FEB number



Check FEB number against master list

PMT overview

- Once FEB is removed, PMT connections to detector modules and LI need to be removed

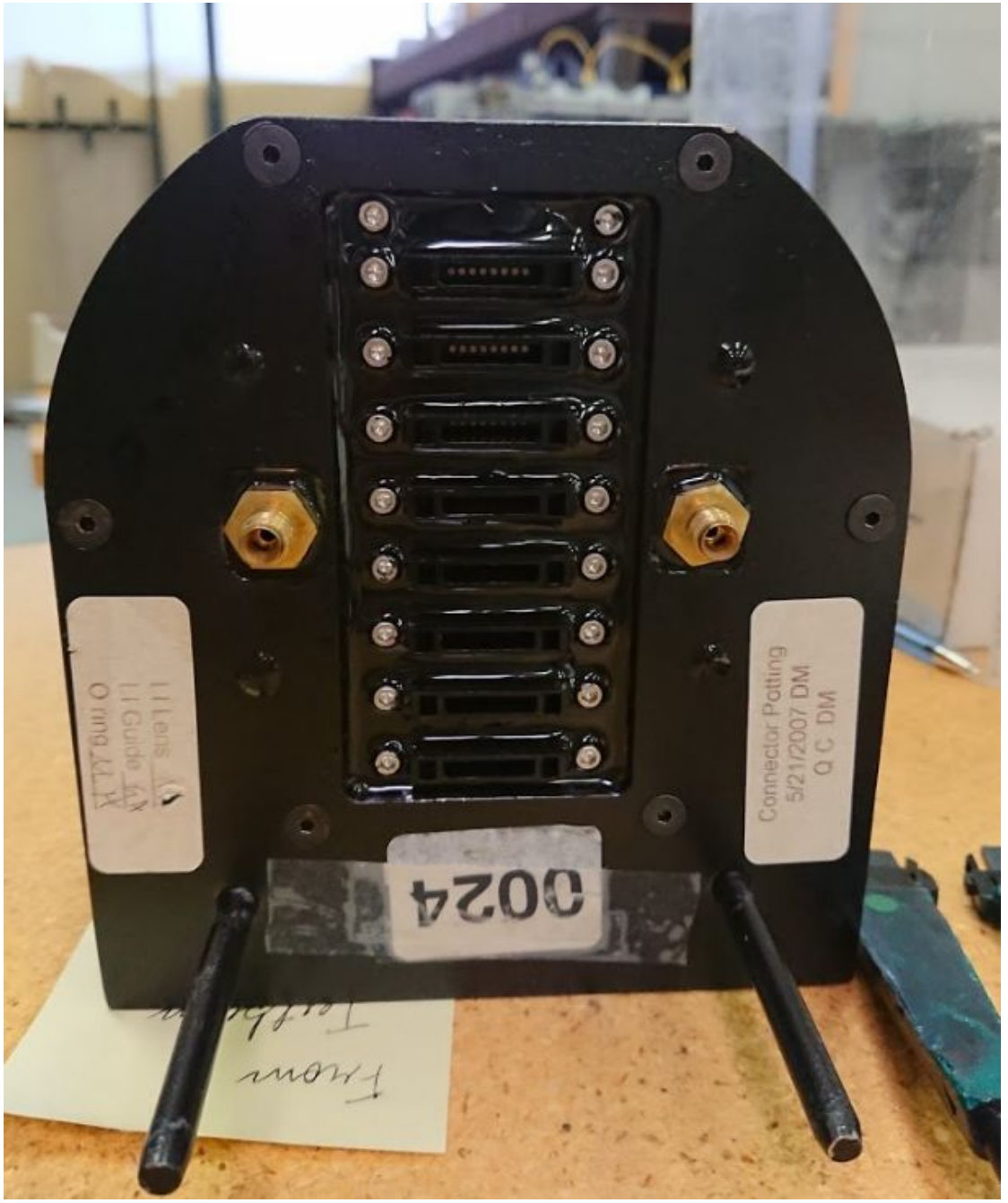


Optical fibers to modules

LI connector

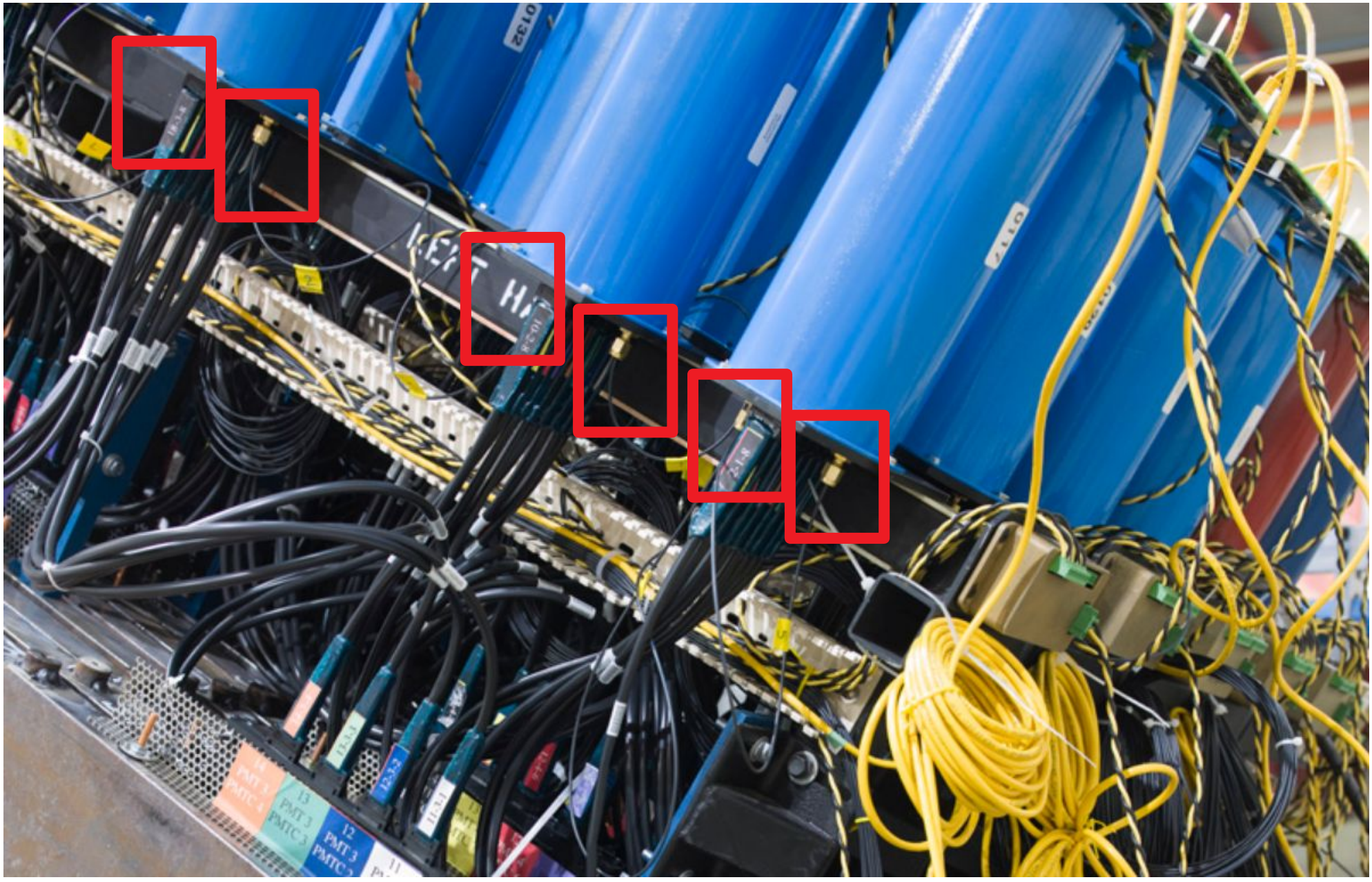
The cables and connectors are **sensitive**
- Avoid scratches
- Avoid strong lights
- **Tape up and cover**

PMT FEB-side view w/o cables



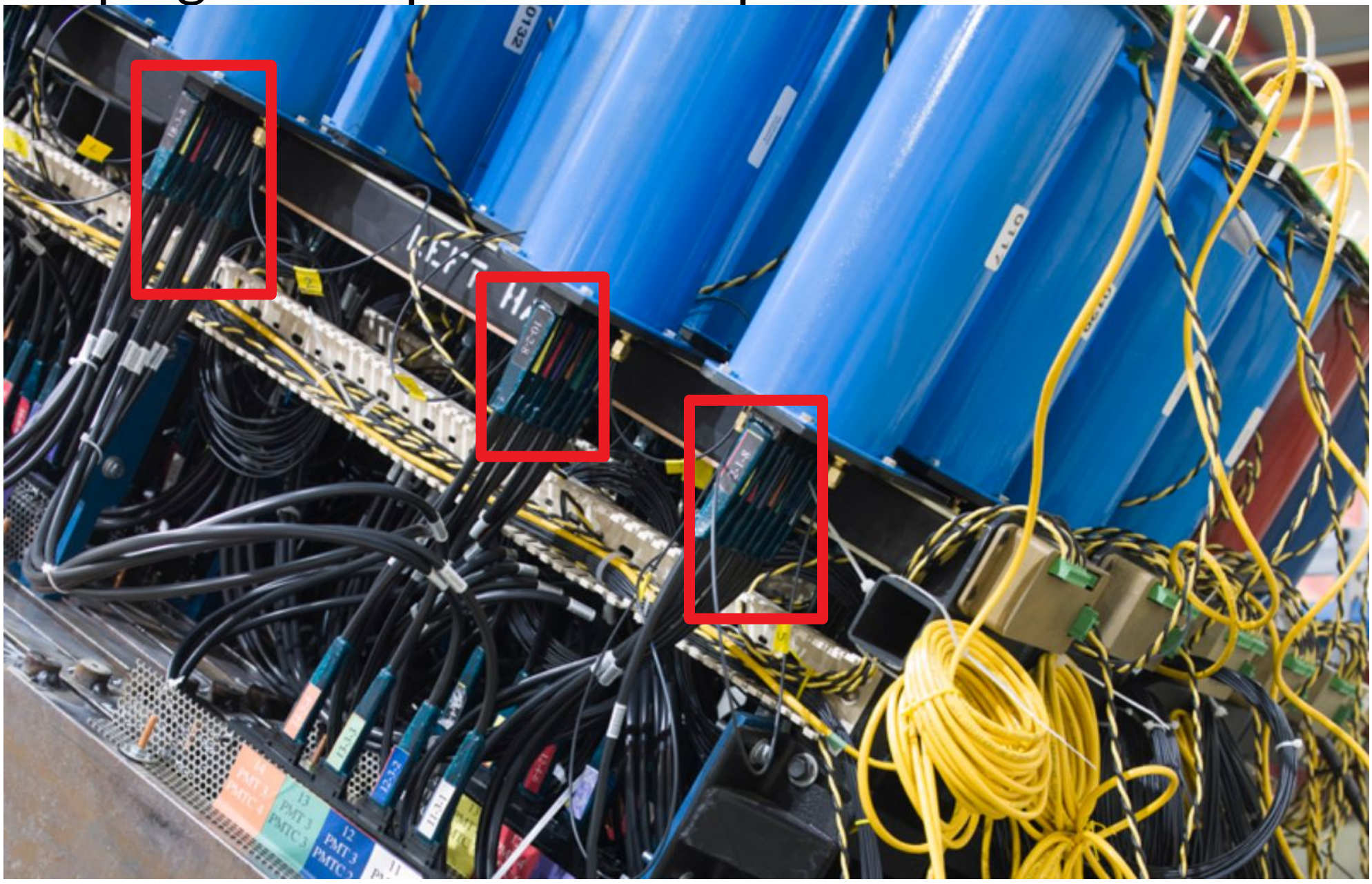
Step 5

- Unscrew the 2 black LI fibers on each PMT



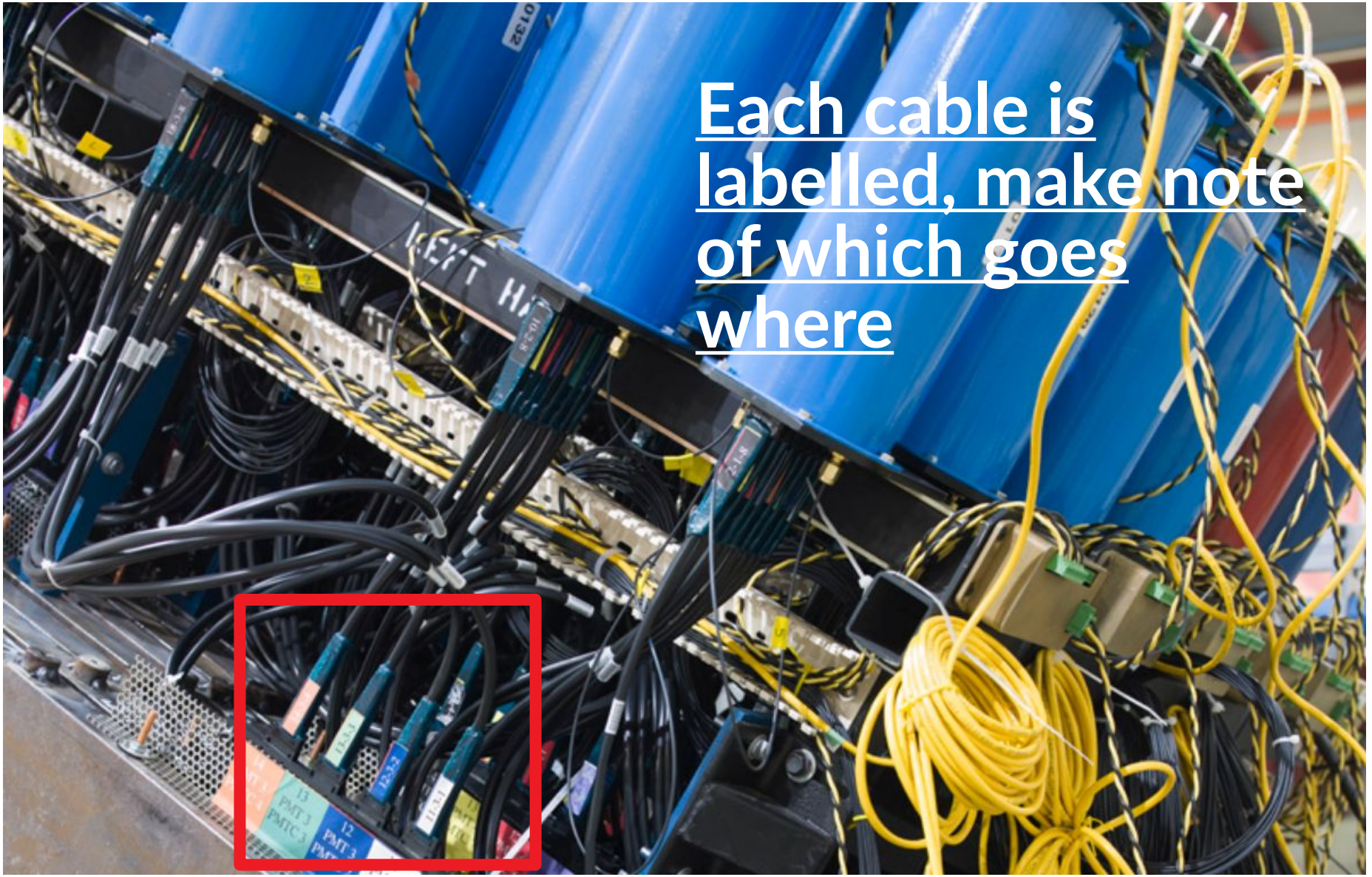
Step 6

- Unplug the 8 optical cables per PMT



Step 7

- Disconnect the optical cables from the MINERvA planes



Step 8

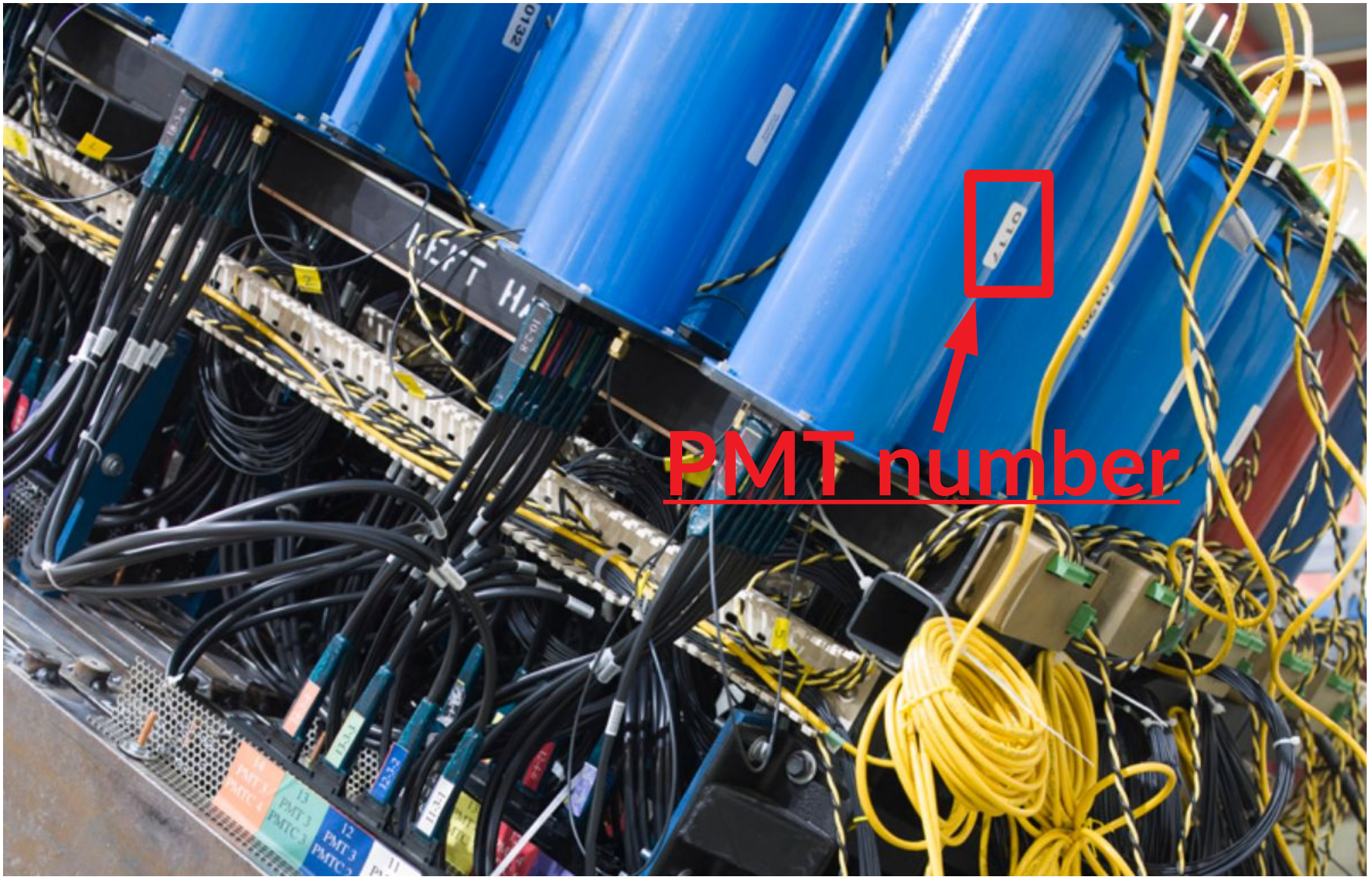
- Inspect the fibers (LI and modules) for damage and tape up to prevent light leak
- **Keep track of order of fibers and label!**
  - **Label by module set (MS-1-27, E or W) and FEB number in chain (1-10)**
- Clean before reinstallation

In assembly cleaning was done with ethanol and q-tip

Inspect each of these fibers

Step 9

- Remove the PMT, check the PMT number with master list, and store it

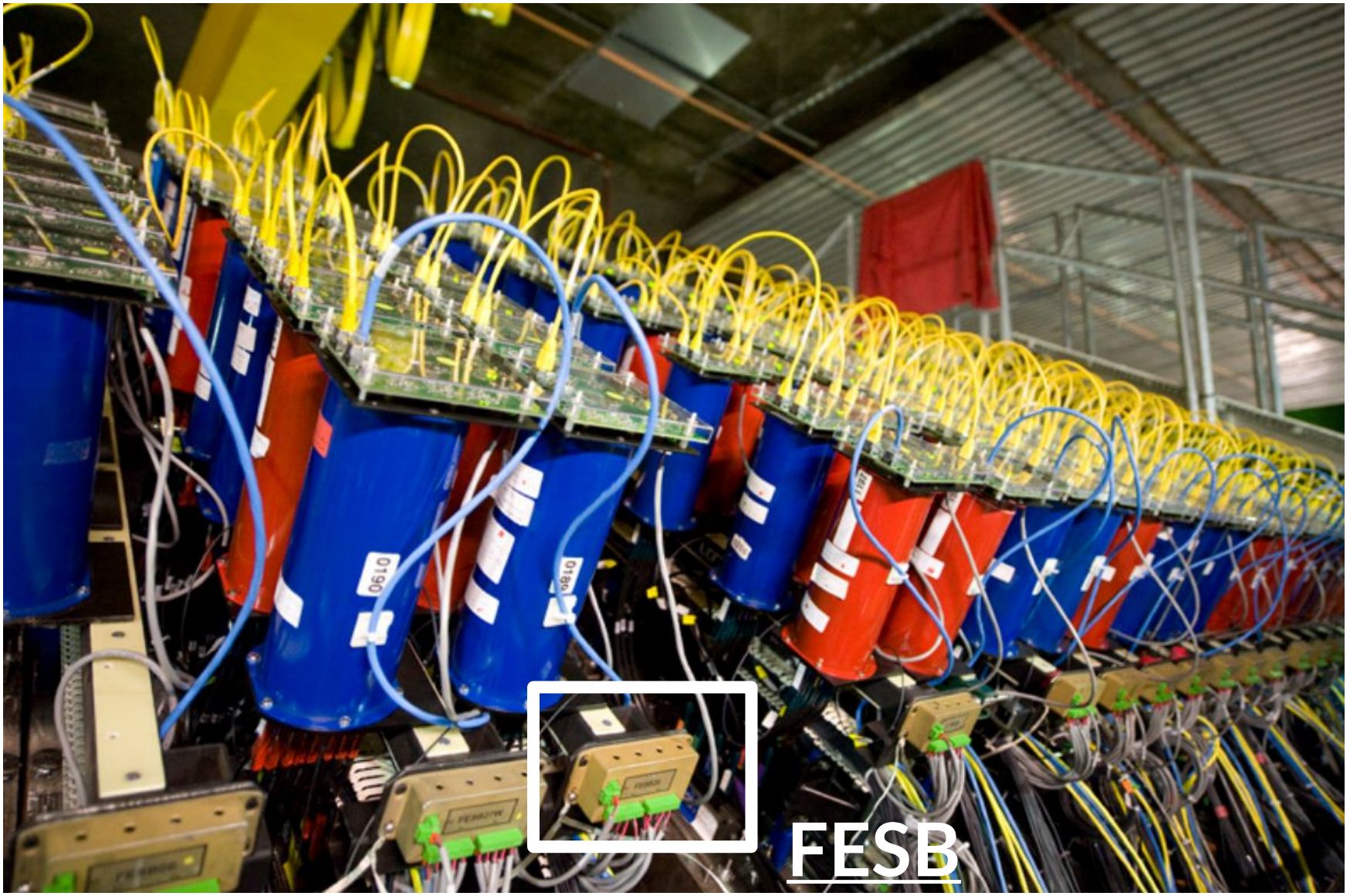


Step 10

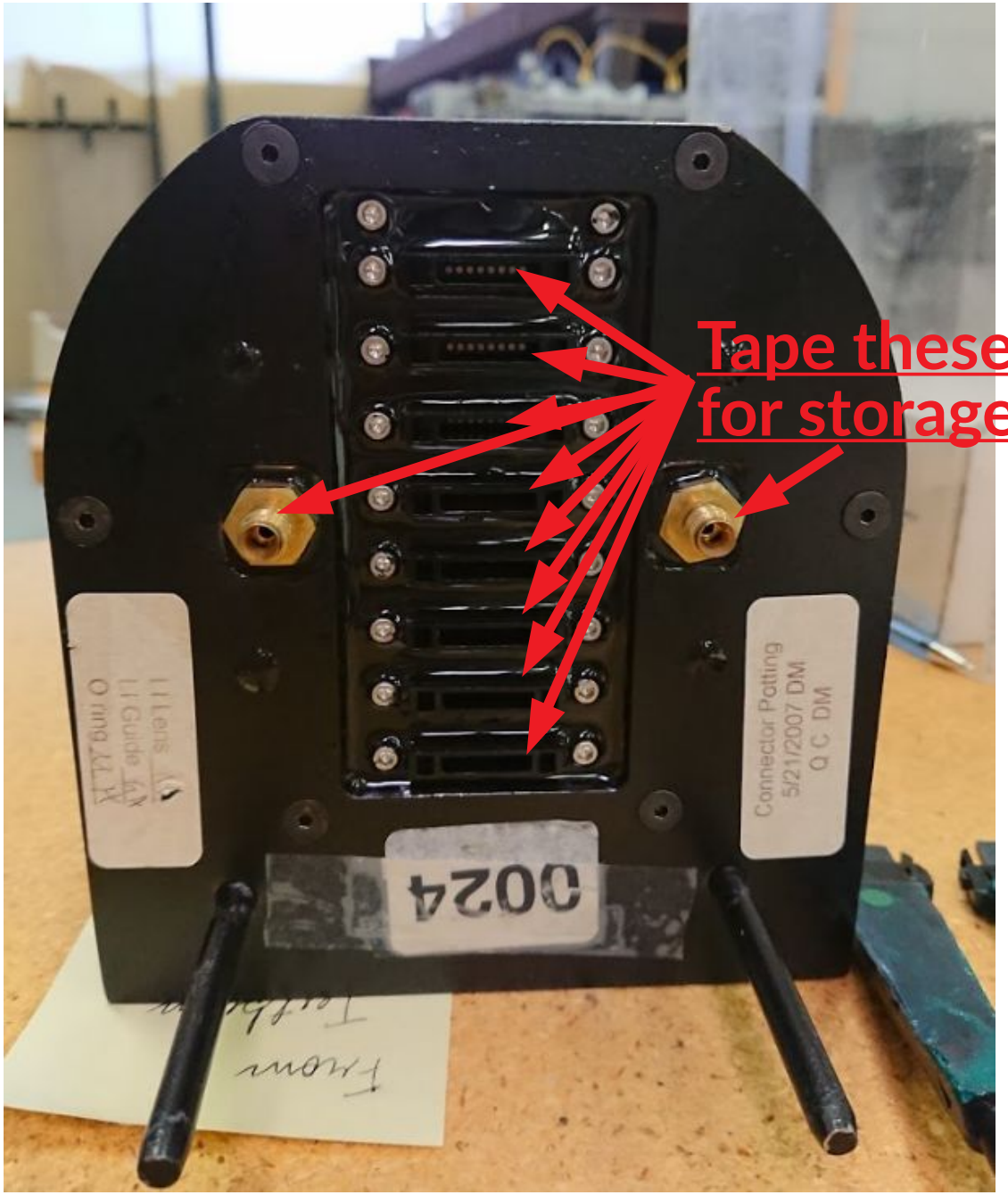
- Pull back the power cables to the FESB on east or west sides, remove power cables and label

Step 11

- Remove the FESB and store it



Step 12

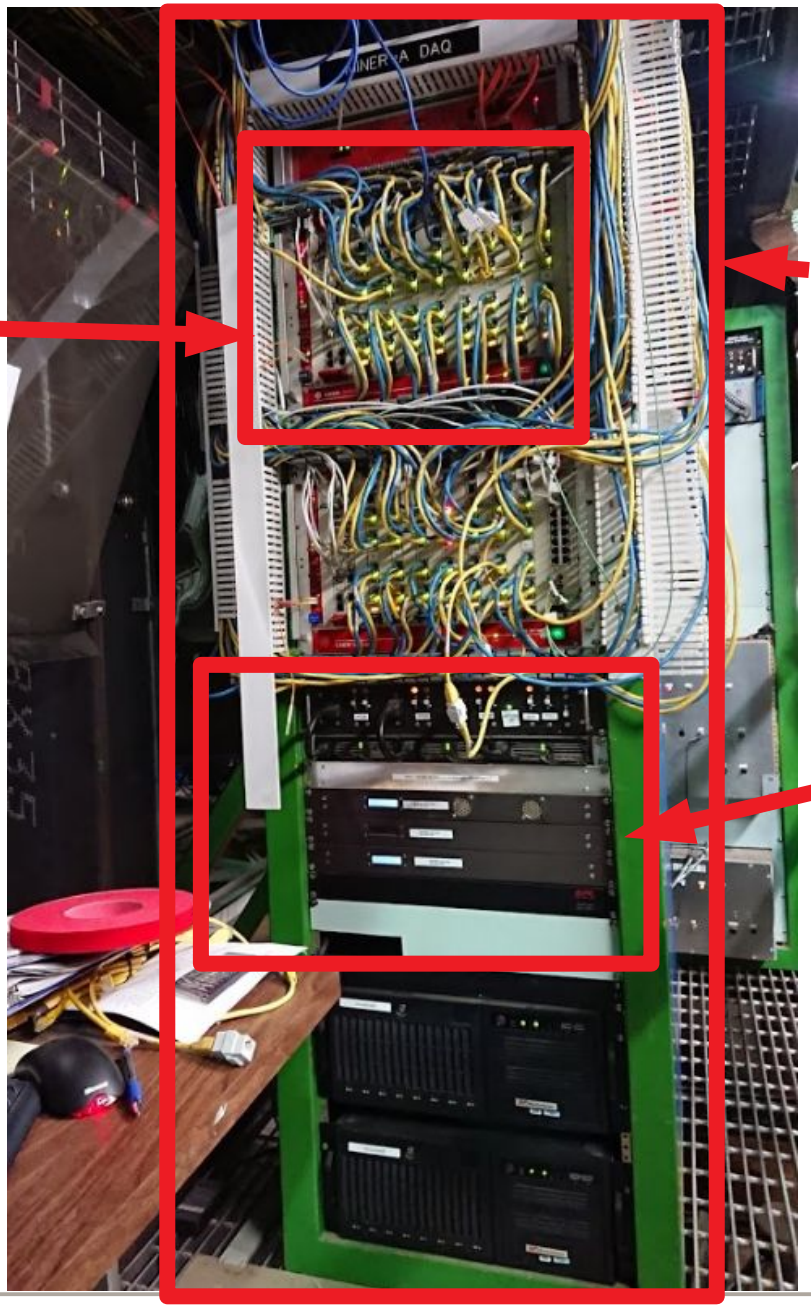

Tape these up
for storage
0024
Connector Potting
5/21/2007 DM
Q C DM

Step 13

- Need to pull back cables once all electronics have been removed from the planes
- LI cables going in to LI rack
- Ethernet cables from the FEBs, going into DAQ rack
- FESB power cables from the FESB, going into the fuse box

- May need person on lift and person on catwalk and DAQ rack

Step 13, continued



Notes

- Avoid re-using water damaged FEB/PMTs
  - If the FEB (under the plastic covering) looks damaged, make a note of it
- The PMTs go back on same way they came off
  - Same PMT for same module with same FEB, etc
- FESB ordering doesn't matter
- Linda Bagby has length of the cables

Thanks