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CHRPR Neutron Board Replacement Manual

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March 2013



Pacific Northwest
NATIONAL LABORATORY

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This document describes the process for exchanging the neutron channel boards with gamma channel boards in the CHRPR box. This is necessary to accommodate the desire to have four gamma channels in one box, rather than two gamma channels and two neutron channels, so that one CHRPR box can process data from both the master and slave columns in the TSA system.

After removing the lid from the CHRPR box, the contents should resemble Figure 1.

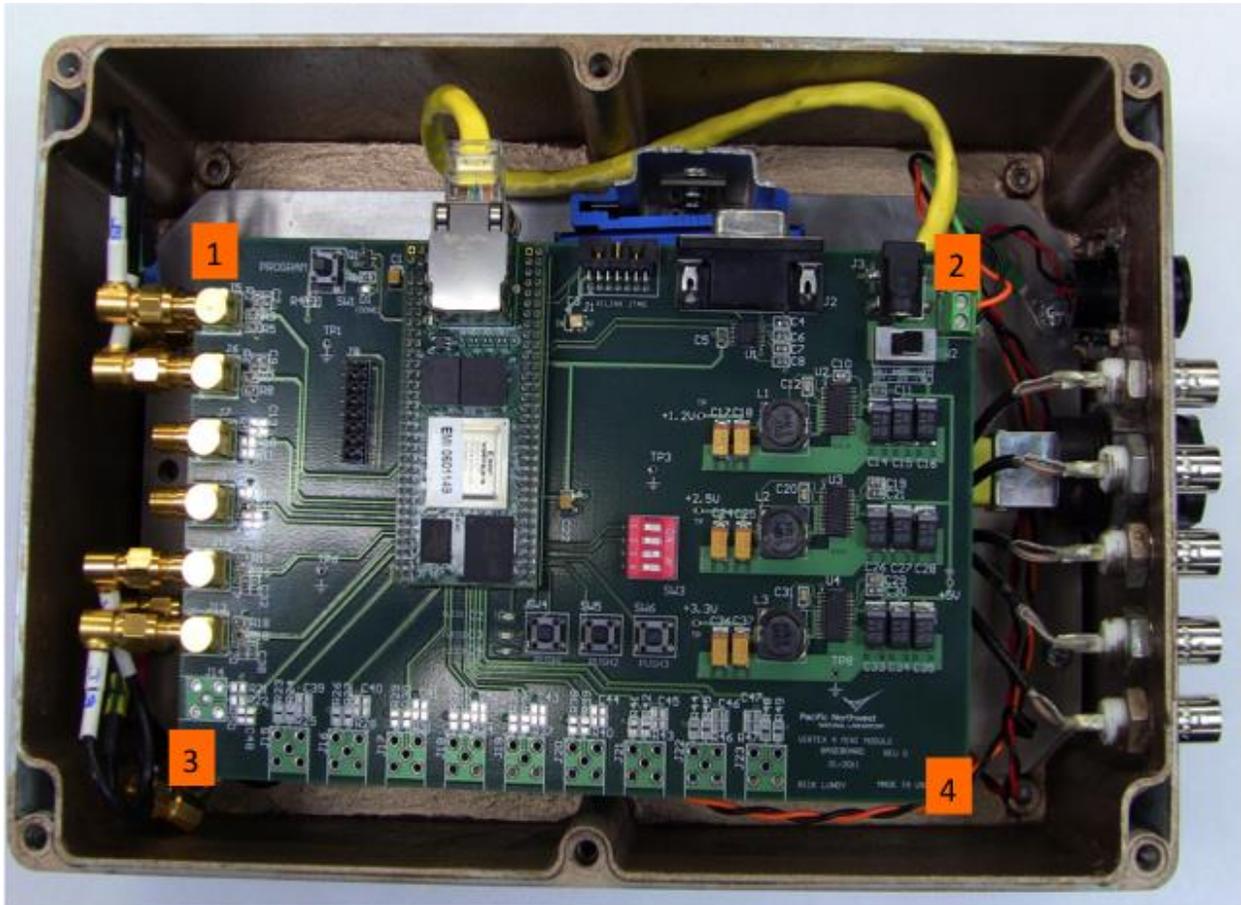


Figure 1. CHRPR Box, Lid Removed

At locations 1, 2, 3 and 4 in Figure 1, remove the screws holding the main circuit board down. Reserve these screws for use when reassembling the box.

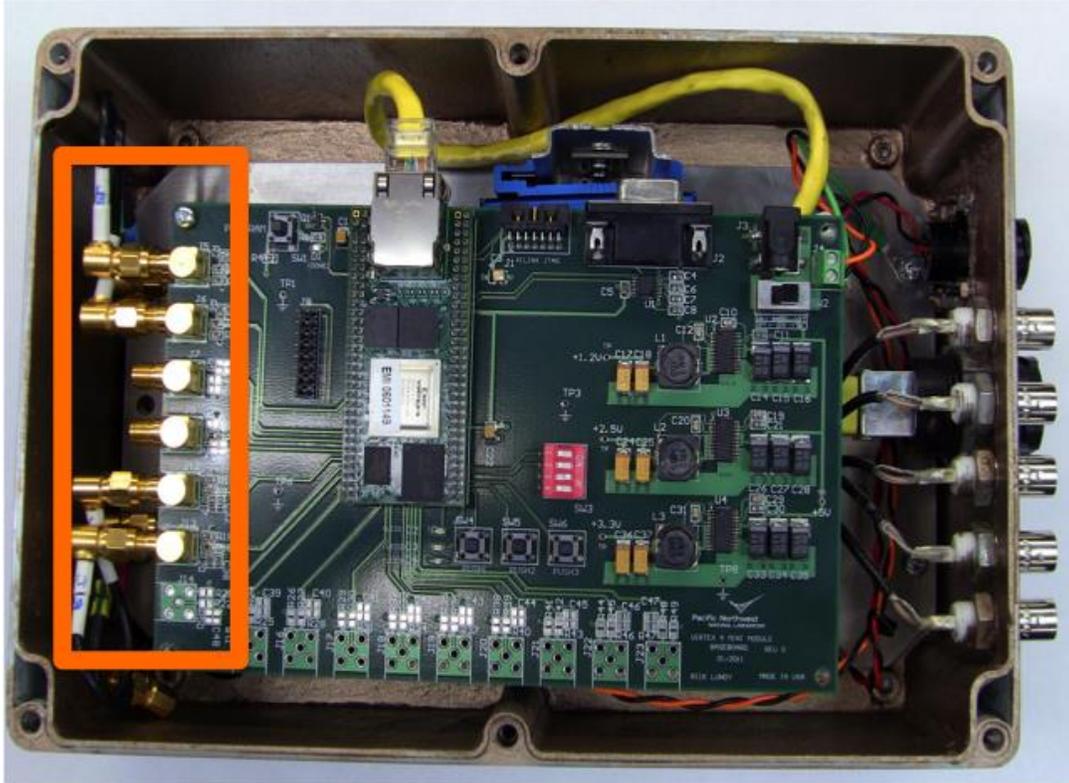


Figure 2. Remove Cable Connectors

Next, remove the cable connectors from the main circuit board by unscrewing each location, boxed in orange in Figure 2 above. Before unscrewing the connectors ensure that the label of each cable matches the circuit board labels as shown in Figure 3. This will ensure accurate assembly when putting the main board back on.

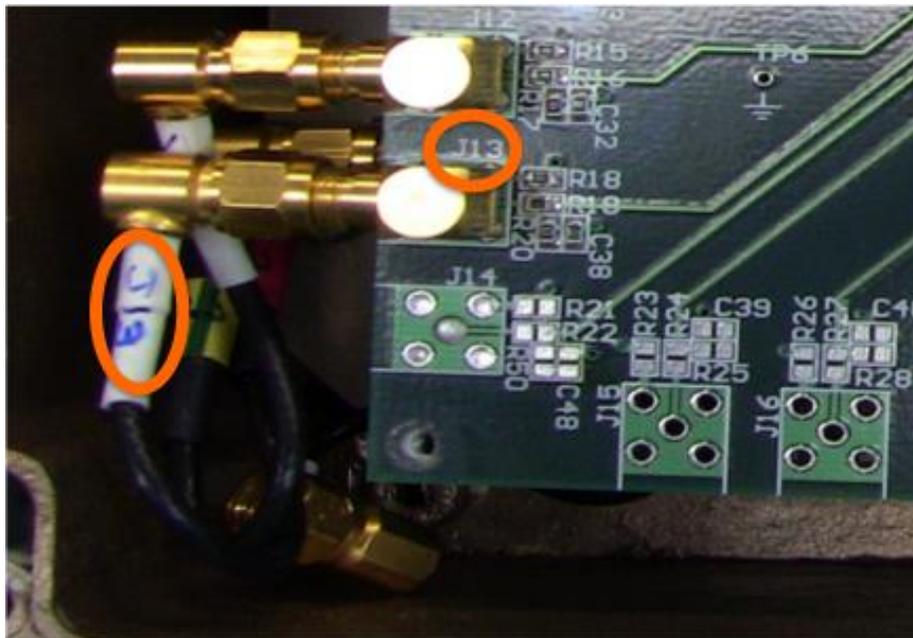


Figure 3. Label on Board and Cable match. "J13" in this case

Carefully lift the main circuit board up and move it to the side. It is OK if the network cable and other cables are still connected, you should now be able to access the smaller circuit boards below, shown in Figure 4.

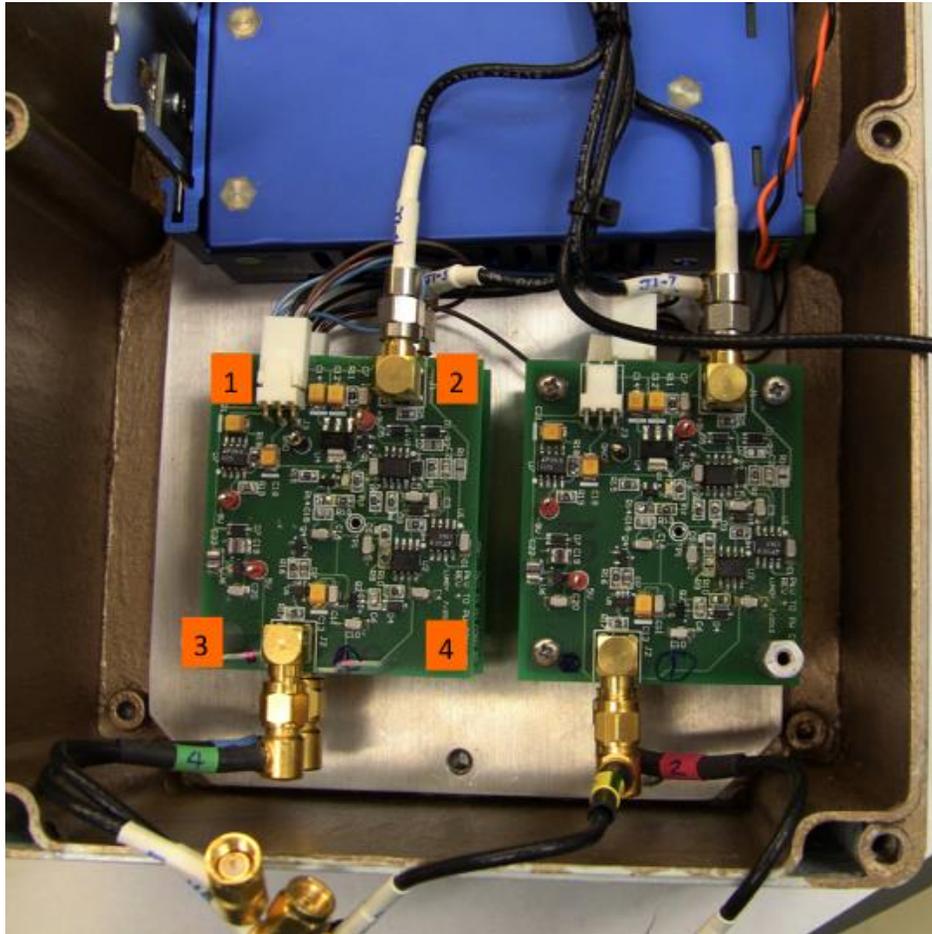


Figure 4. Neutron Board Removal

Now remove the screws at locations 1, 2, 3 and 4 as shown in Figure 4. As was done in Figure 3, ensure each cable connection has a label, or create unique label for each location before the cables are disconnected. Once labels are in place, remove the cables and lift the circuit board from the box. Repeat this step for the circuit board directly below this one.

Replace the boards that were removed with the two new gamma boards, ensuring cables go back to the same locations they were removed from. If the cables are connected to the boards improperly, there is a high risk the boards will be damaged. If the gamma and neutron boards are inadvertently mixed up, observe the number written on resistor R9. The value should be “470” for the gamma boards.

Replace the screws removed along the way, and replace the lid.