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To: Aleutian Outfitters
From: John Barrett, Rigel Cappallo
Subject: Adak EDGES3 System Tear Down

1 Description

The EDGES3 antenna system needs to be dismantled in order to pack and ship the receiver electronics back to Haystack. The receiver electronics is confined to one-half of the antenna, but it needs several attachment points to be severed in order to remove it from the frame. The receiver electronics are confined to the antenna panel which does not have any copper tape applied to the seams. This (recever) panel is the aluminum box on the right as shown in 1.

Figure 1: The antenna system on the ground plane. In this photograph, the camera perspective is looking south-east towards Kuluk bay, and the receiver electronics are in the panel (without copper tape) on the right.

Once that receiver box has been removed from the antenna frame. It will need to be packed in the original wooden crate for shipping (shown in figure 2). This wooden crate can be found inside the metal hut to the south-west of the NSGA building as shown in figure 3. The lid of the crate is attached with standard wood screws.

Figure 2: The wooden crate for packing the antenna receiver panel.

Figure 3: The hut containing the system support electronics is denoted by the red arrow. The hut containing the wooden shipping crates is identified with the green arrow.

2 Procedure

The general procedure to remove the receiver electronics panel and pack it is as follows:

1. Remove the plastic cover, rubber tube, and dielectric grease from the central connector between the two antenna panels. Figure 4, shows the plastic cover over the central connector. Figure 5 shows the central connector covered in dielectric grease, once the grease is wiped off this should reveal the section that needs to be cut as shown in figure 6.

2. Identify the thin central brass connector as shown in figure 7 and cut it. This can be done either with a pair of wire cutters (if they are narrow enough to fit in the gap), or perhaps more easily, with a hack saw (care should be taken not to apply too much pressure).

3. With an electric power saw (Sawzall or equivalent), cut the four fiberglass legs under each corner of the receiver box. Take care not to breath in the dust, a respirator is recommended for this step. The cuts should be made as close to the aluminum box as possible, ideally ~ 0.5 inch or less below the bottom of the box, see figure 8 for the approximate location of the cuts.

4. On the underside of the box, where the two brass pipes enter from below, there is a small rectangular metal box. Remove the four screws holding on the the lid of this box (which is connected to the brass pipe). This box is shown in figure 9, the location of the lid screws is visible in figure 10.

5. Once the four screws are removed, pull down the lid (and attached brass pipe) and rotate it out of the way, until you see an orange optical fiber and a black/red pair of wires passing into the box. These wires and optical fiber should be clipped with a wire cutter.

6. Remove the plastic side panels holding the two halves of the antenna together, these can easily be detached by removing the cap head screws shown in figure 11.

7. The receiver panel can now be removed and packed in the wooden crate for shipment, the crate lid is attached with wood screws.

8. To prevent water intrusion into the black optical-fiber/electrical box (shown in figure 9, and which may be used in a future deployment), pack the disconnected brass tube with foam, apply tape over the hole and then cover it with a plastic bag that is zip-tied over the top with the seam taped shut around the pipe.

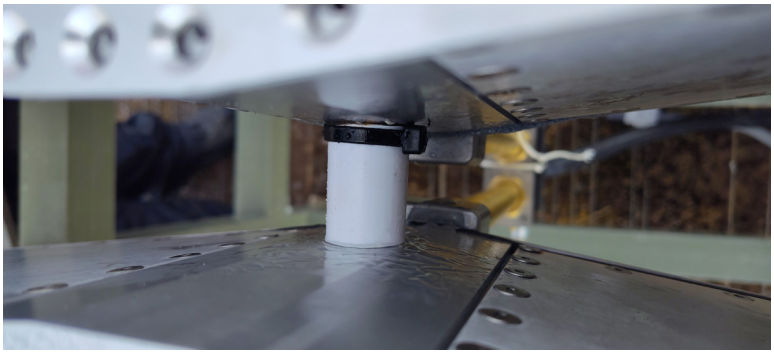

Figure 4: The plastic cover over the central connector. Clipping the black zip tie should allow the plastic to be pried off over the top. Underneath the cover is a slit rubber tube which can be easily pulled off.

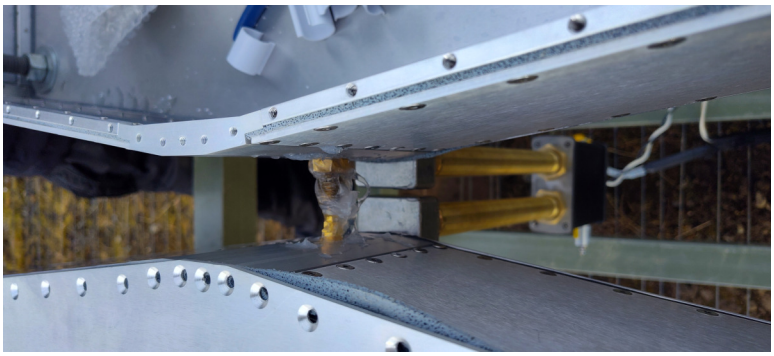

Figure 5: The central connector covered in dielectric grease.

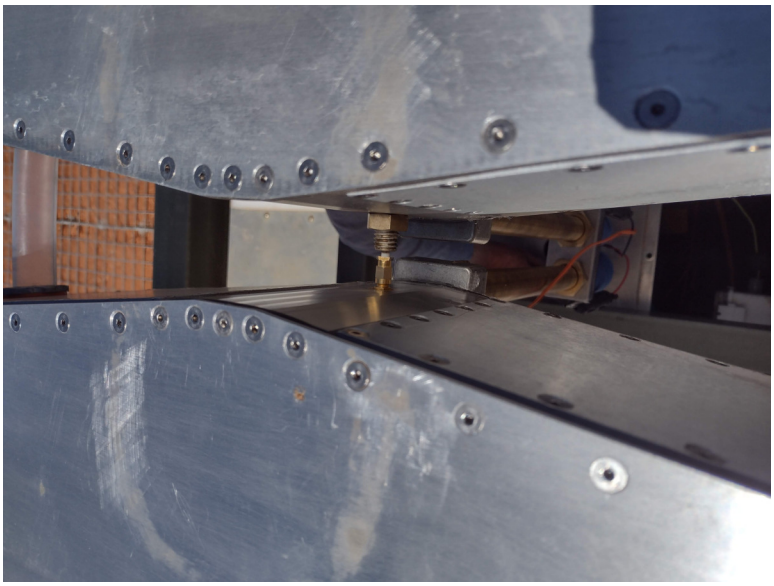

Figure 6: The central connector with grease removed.

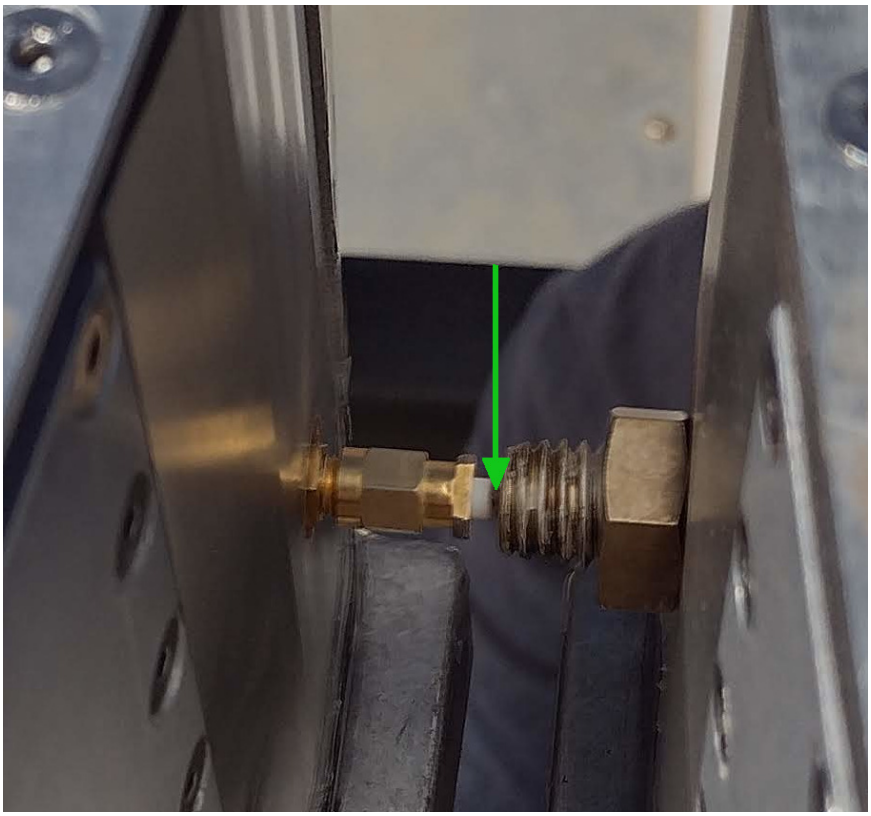

Figure 7: A zoomed-in image of the central connector. The brass wire to be cut (barely visible underneath the white PTFE insulator) is indicated by the green arrow.

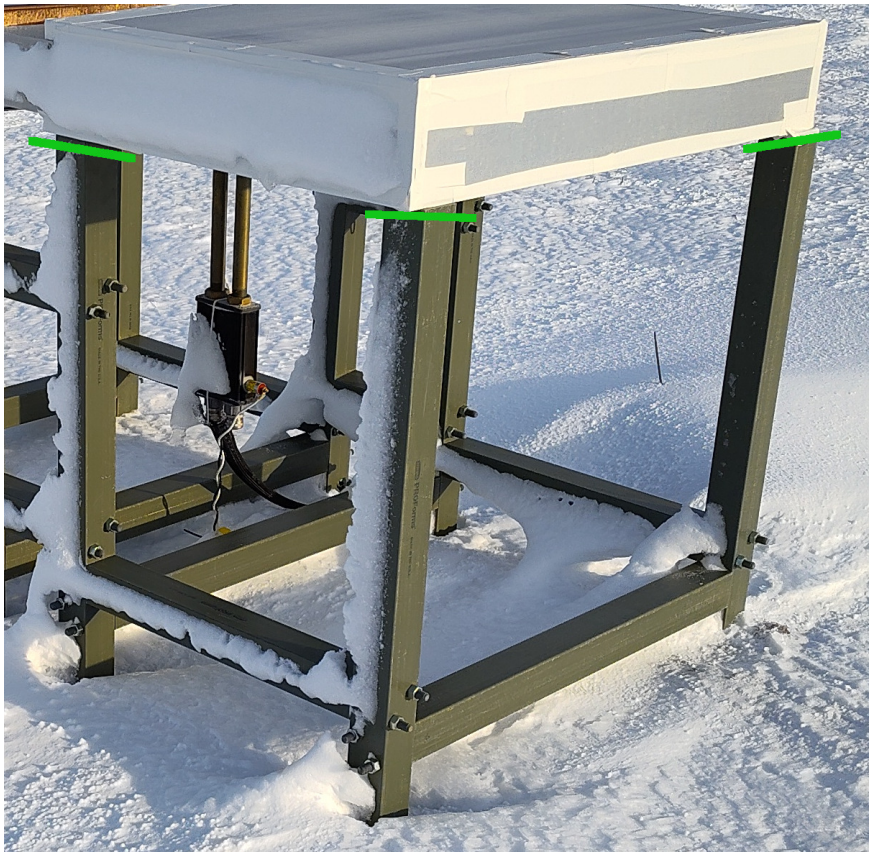

Figure 8: The fiberglass legs to be cut. The approximate cut locations are denoted by green lines. The leg on the far side is not completely visible in this image, but will also need to be cut in a similar manner.

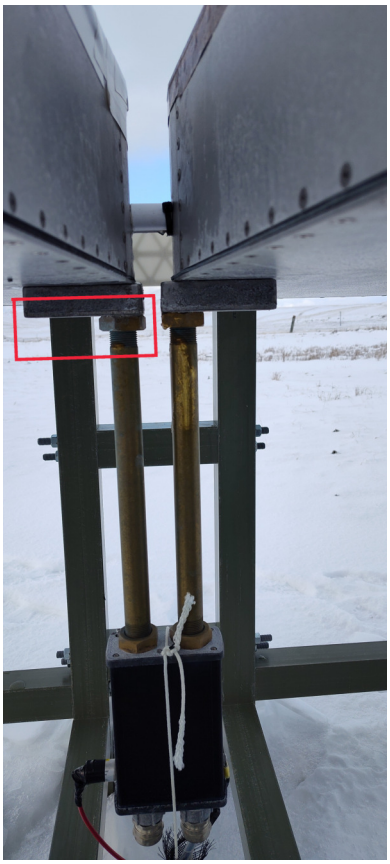

Figure 9: The electrical box cover (indicated in red), which needs to be detached by removing the four screws (not-visible in this image), and rotated out of the way to expose the fiber and DC power wires.

Figure 10: The box cover, showing the screws to be removed.

Figure 11: The plastic side panels that hold the two antenna halves together can be detached by removing the three cap head screws on each side.

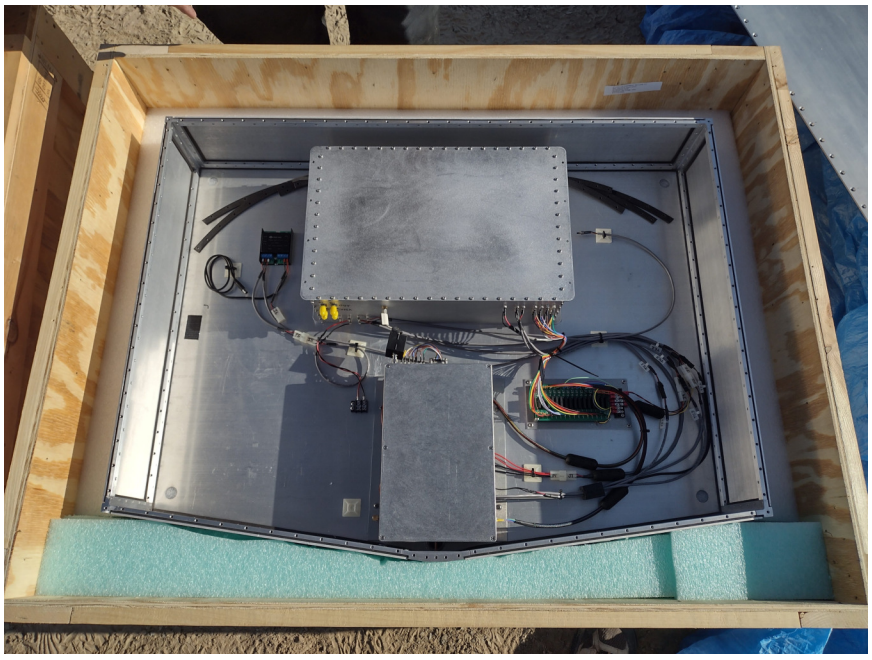

Figure 12: The antenna panel in shipping crate, demonstrating how it is positioned once it has been packed into the crate. However, the aluminum cover of the antenna panel will not be removed (as it is shown here).