Repair visit to AMIGOS-III '3a' installation, "Skua"

Location: 75° 02.003' S; 105° 35.000' W, ~22m a.s.l.
Moving at ~635 m/yr to the north-northeast

90-120 minutes of at-station-site activity.
Please call Ted Scambos / Bruce Wallin prior to visit for latest on station status

Snow height will be approximately 1m below the mirror shown in the attached picture, and so the white enclosure will be about 3.6m, 12 feet, above the snow. This is estimated, but we expect to have snow height data right up until the visit.

Please assign someone to take many photos of the site and the instrument – in its pristine condition before work begins, and of the operation. All aspects are of interest, in particular the structural components of the tower, condition of the cable connections, guy wire clamps, etc. Please also take pictures of the inside of the various elements that are opened during the visit: orange box, black box, white enclosure, and instrument cross-arm. Lastly, a few airborne images of the nearest crevasses (they are to the west and north).

For the UNAVCO or IRIS/PASSCAL tech, the main steps are:

- Photos of station, Power Down, Open white enclosure

- inspect IMM modem and connection from main board serial port

- Swap IMM module if needed
(remove previous silicone glued connectors,
(attach with adhesive on top of existing
(reattach and glue connectors)

- Inspect router and connections

- Swap router if needed
(unfasten velcro and connectors)
(install replacement, re-connect)

It could be as simple as the serial plug to the board jostled out — or, simply replace the IMM. This may be just an install over the top of the existing IMM. The IMM is the gold rectangle with blue connectors to the lower left of the large blue hub in the attached picture. It is about 2cm by 5 cm in size. Similarly, the router malfunction could be a loose wire, but if not replacement may be necessary. This is relatively easier as the router is attached with velcro and connectors accessible without tools.

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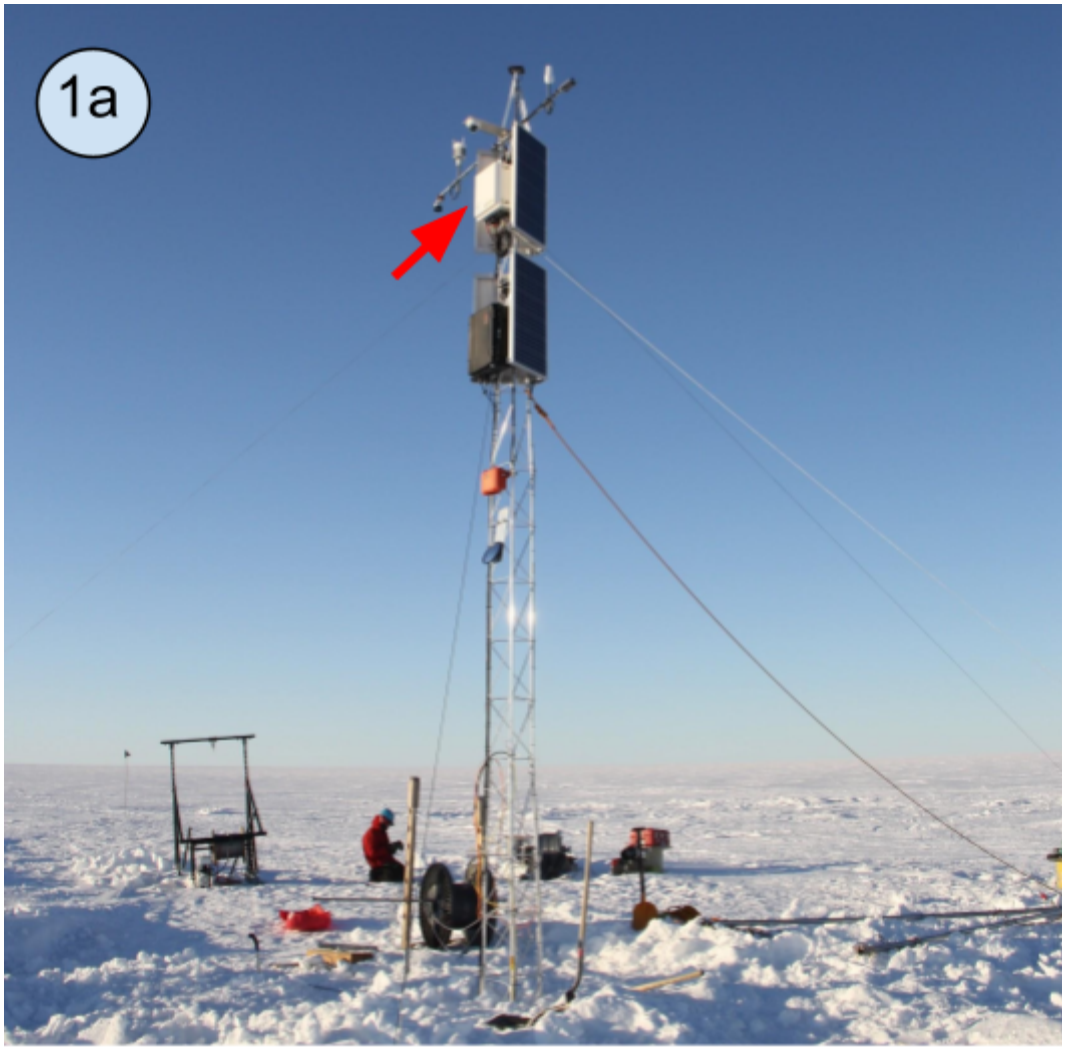
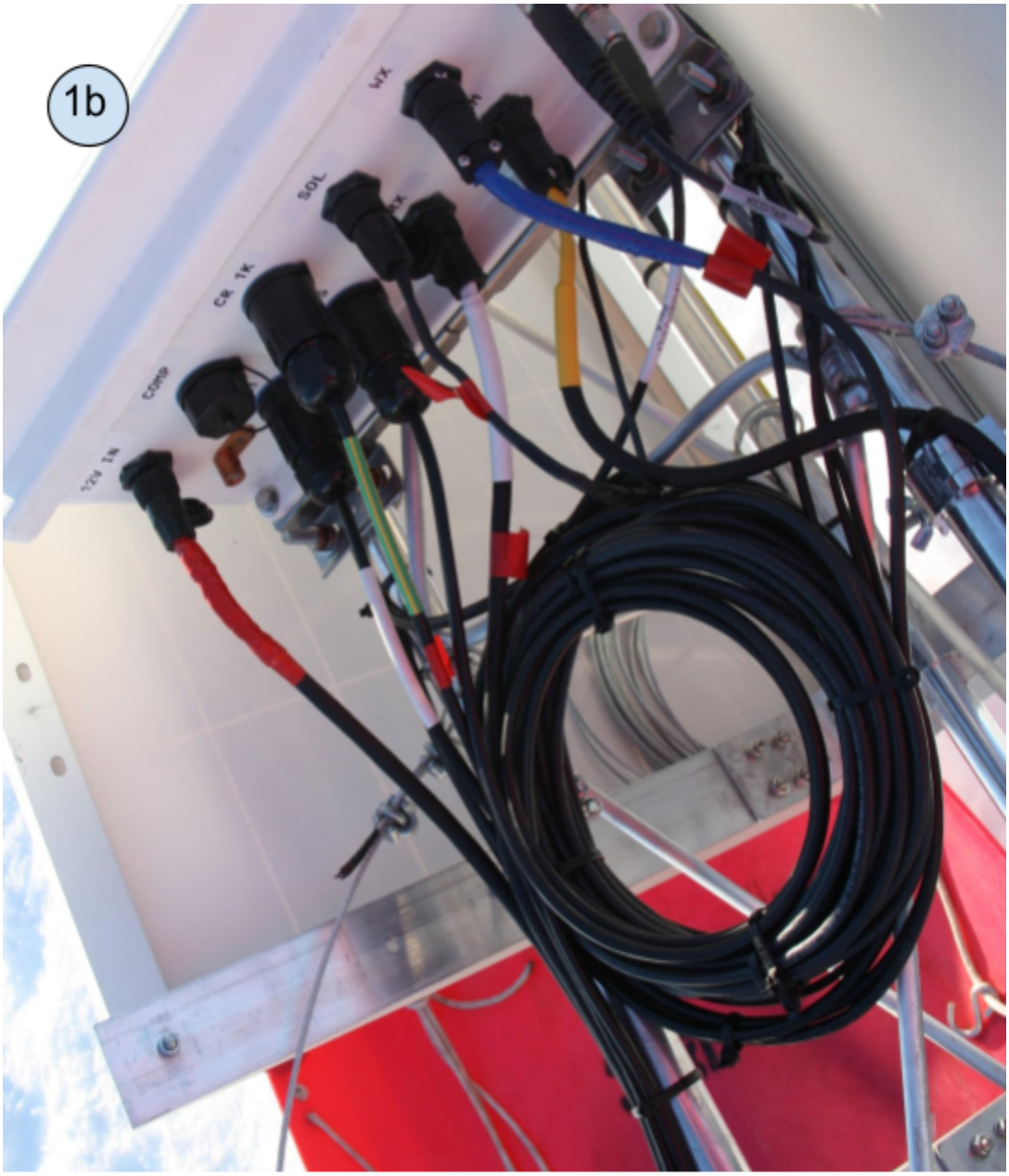
White enclosure inspection

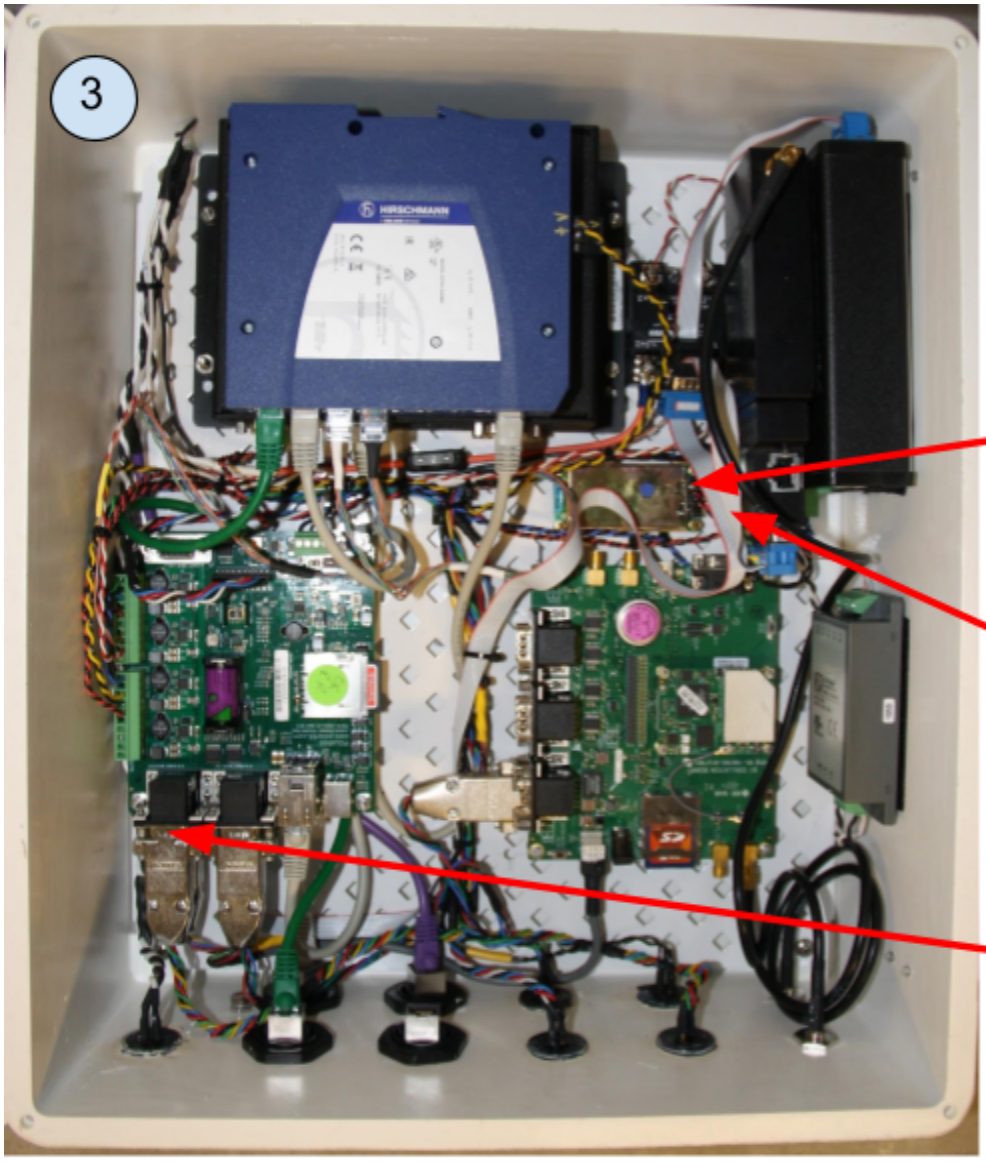
1. Inspect and photograph outside connections at base of white enclosure. Finger-tighten connections as needed
2. Unlatch and open the white enclosure. There may be loose packets of desiccant that will try to fall out. Remove these for working inside (and replace at the end)
3. Locate the IMM module and inspect the 2 connectors on it as well as the RS-232 connections on the main board (in particular, the left-most rear-most)



Tower and location of white enclosure



Connections at base of white enclosure

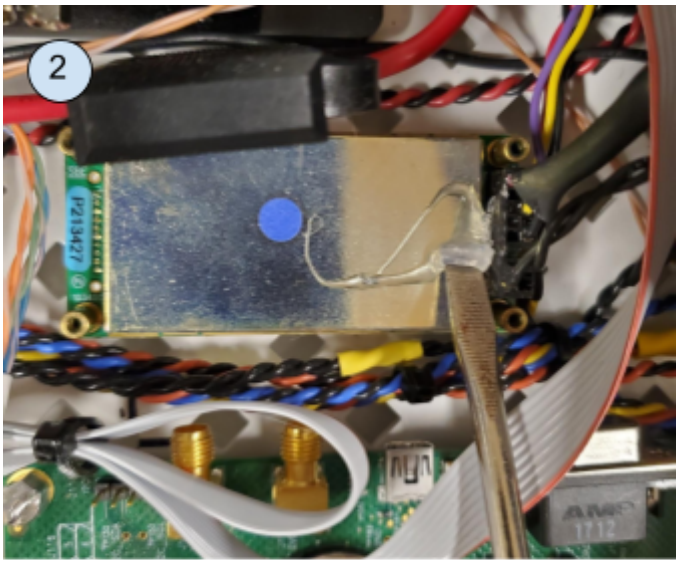


White enclosure and IMM module overview

IMM Module Replacement

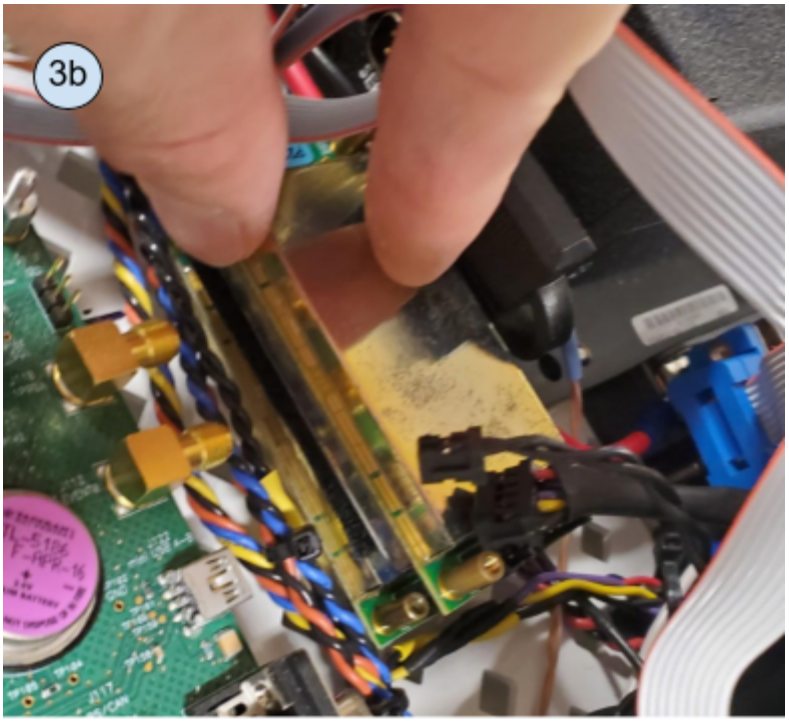
1. Unplug cable on bottom of white enclosure labelled “12V IN” by grasping collar and simultaneously pressing toward enclosure and twisting counterclockwise 45° to release
2. Using a flathead screwdriver or small knife, carefully remove the silicone securing the 2 connectors and disconnect them (note orientation for step 4)
3. Remove adhesive backing on replacement IMM module and attach on top of existing module
4. Plug the connectors into the replacement IMM module in the same orientation (or see image below)
5. Secure connectors with dab of silicone
6. Plug cable on bottom of white enclosure labelled “12V IN” back in
7. Observe main board LED activity to confirm power restored

Unplug the power supply

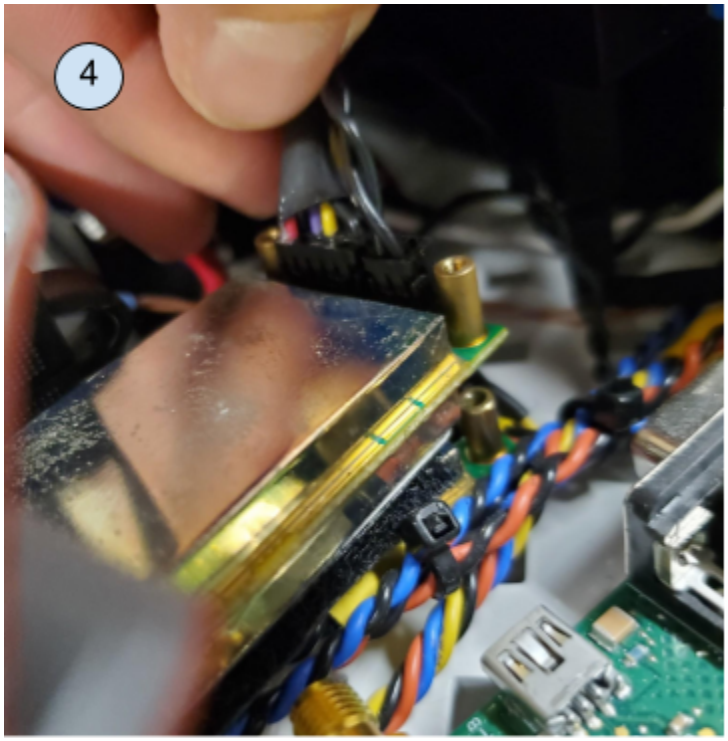


Remove silicone and IMM module connectors

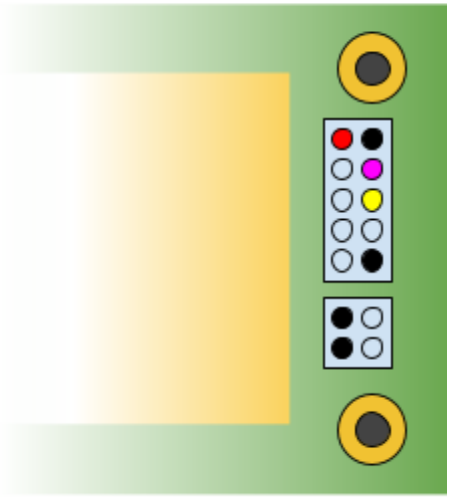
Remove backing from velcro adhesive on replacement IMM module



Adhere replacement IMM module on top of existing, now disconnected, module



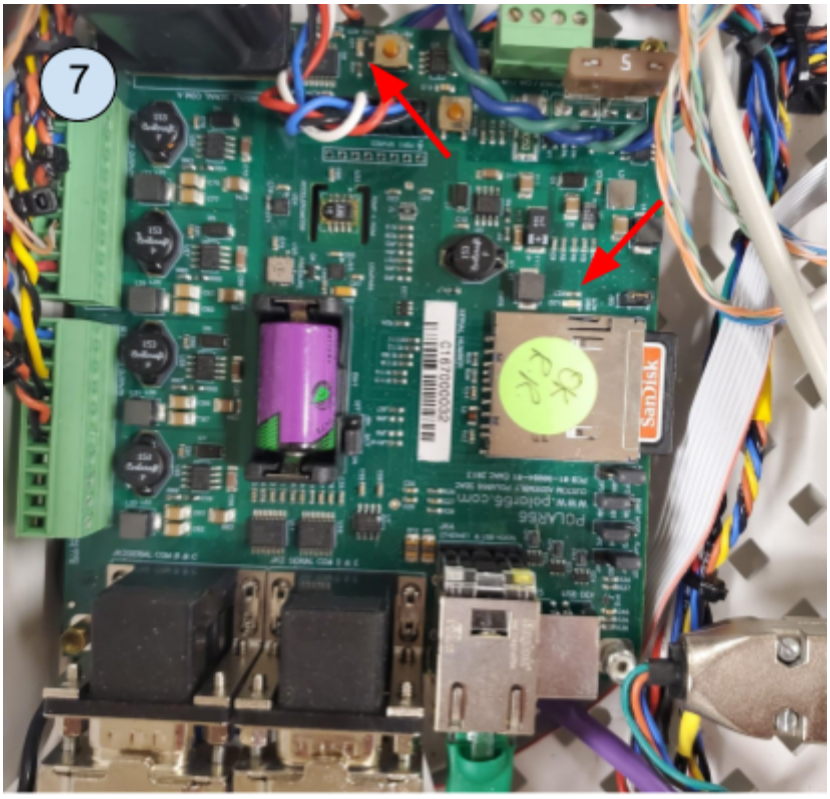
Plugin connectors to replacement IMM module in correct orientation



Correct connector wire orientation

Add dab of silicone to connectors to secure in place

Plug power cable back in

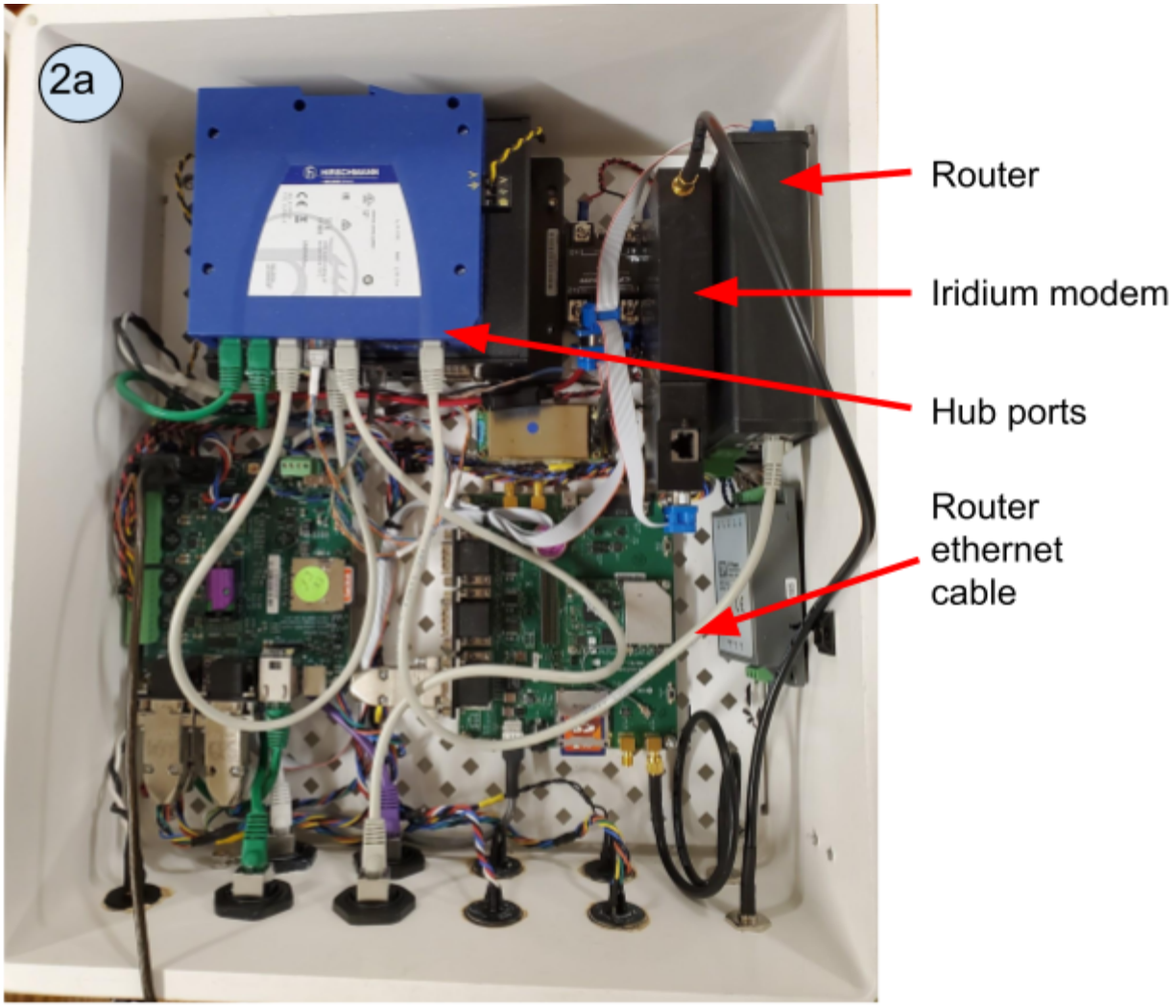


Observe activity LEDs ~ 30 seconds
(should blink intermittently on startup)

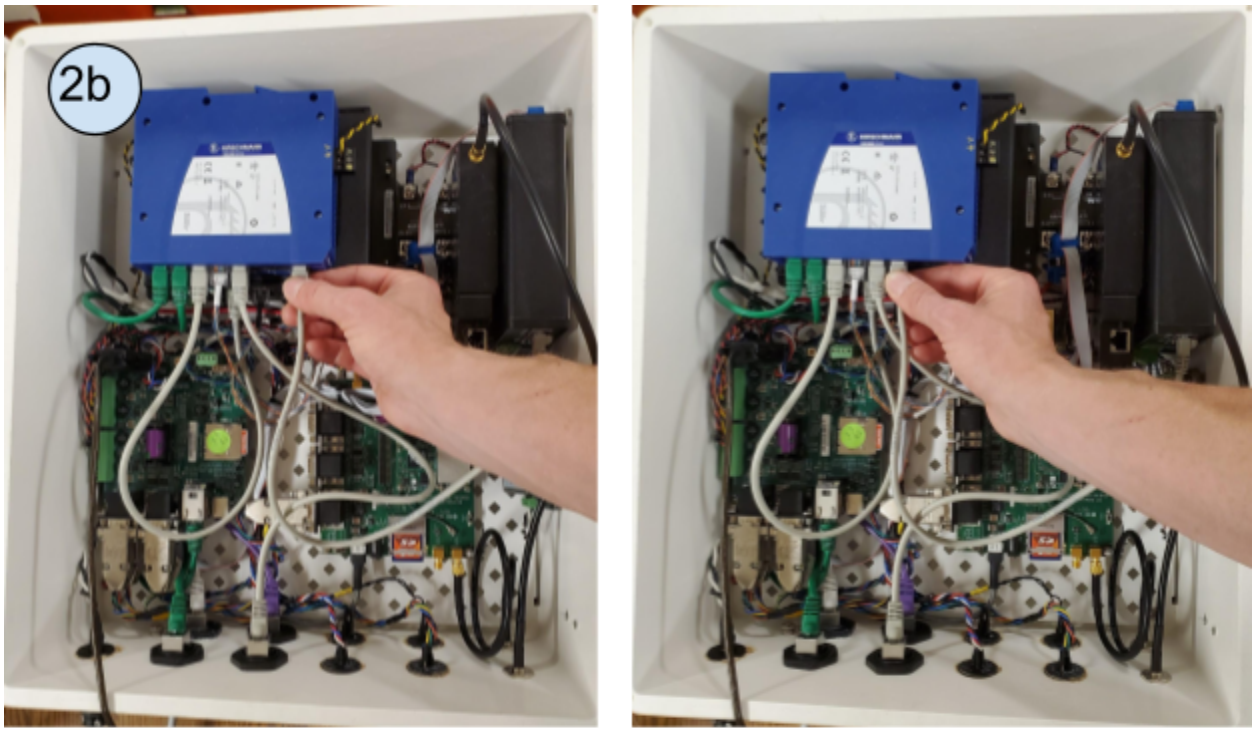
Router Replacement

1. Unplug cable on bottom of white enclosure labelled “12V IN” by grasping collar and simultaneously pressing toward enclosure and twisting counterclockwise 45° to release
2. Locate short ethernet cable from router to hub. Move end plugged in to the hub to another available port (in case the hub port has failed)
3. Use flat head screwdriver or fingers to pry apart velcro securing Iridium modem to router
4. Similarly pry apart velcro securing router to enclosure wall
5. Disconnect power, ethernet, and serial cables from router
6. Replacement router can now be swapped in and ethernet, serial and power cables reconnected
7. Plug cable on bottom of white enclosure labelled “12V IN” back in
8. Observe main board LED activity to confirm power restored
9. Observe hub status lights. Confirm the port connected in step 2 shows led status light activity within ~2 minutes of powering on

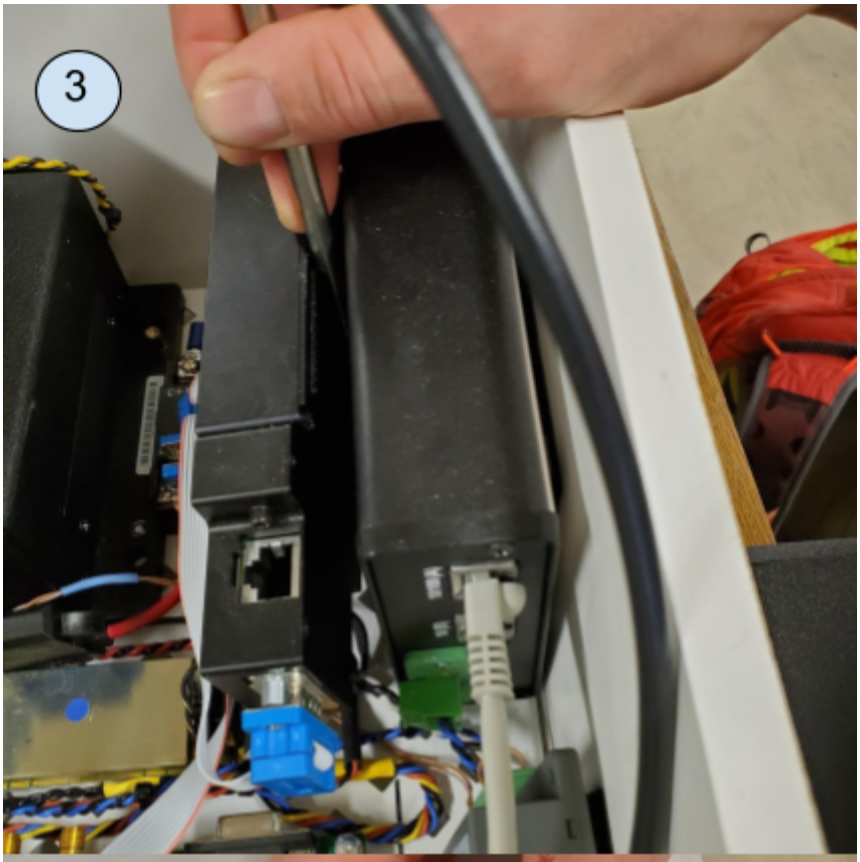
Unplug the power supply



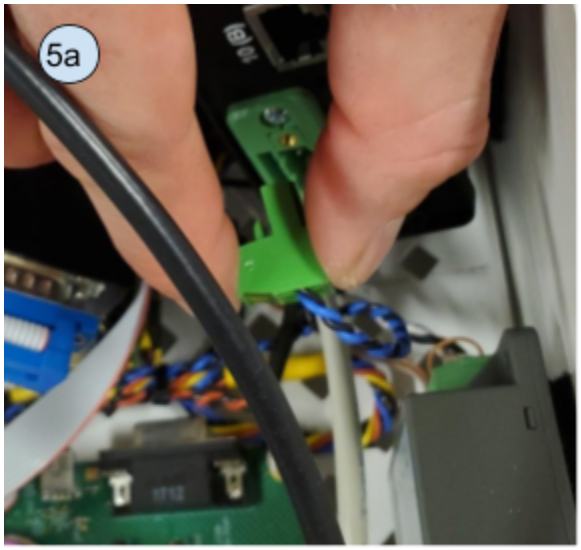
White enclosure and router components overview

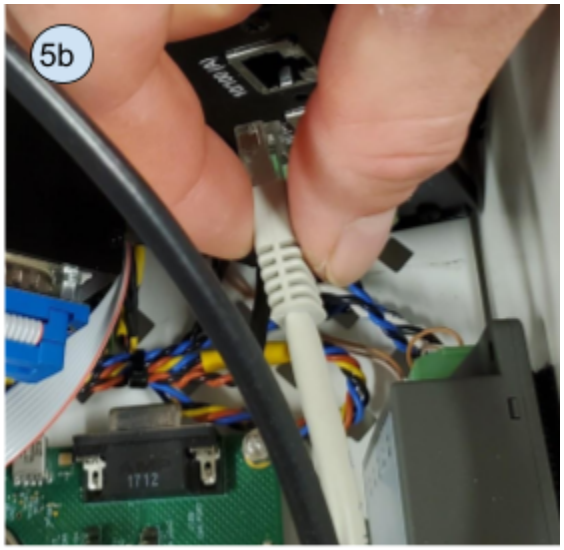


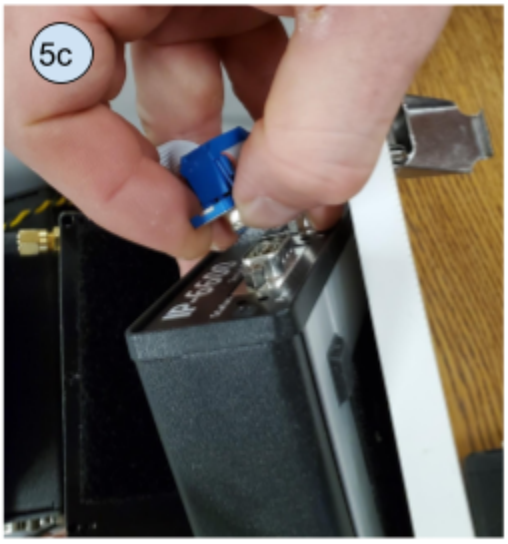
Swap port that router is connected to on hub
(any unused port is fine)



Pry apart velcro (flat head screwdriver helps) between modem/router and router/enclosure wall



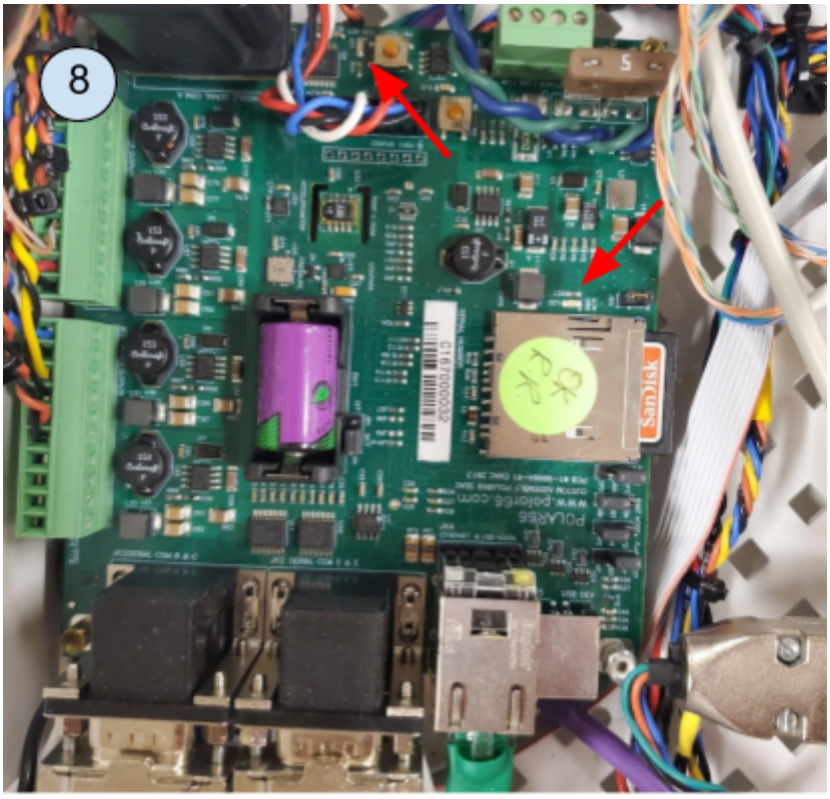




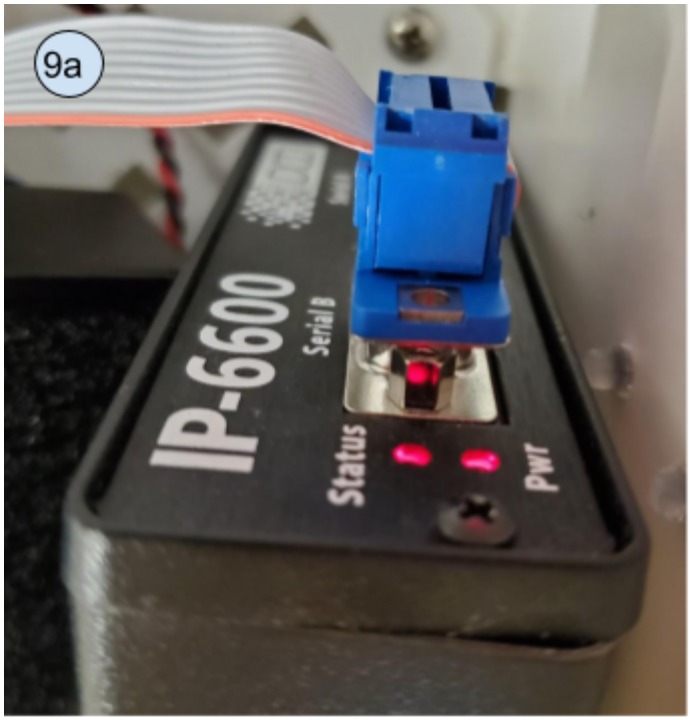
Disconnect power, ethernet, and serial cables from router

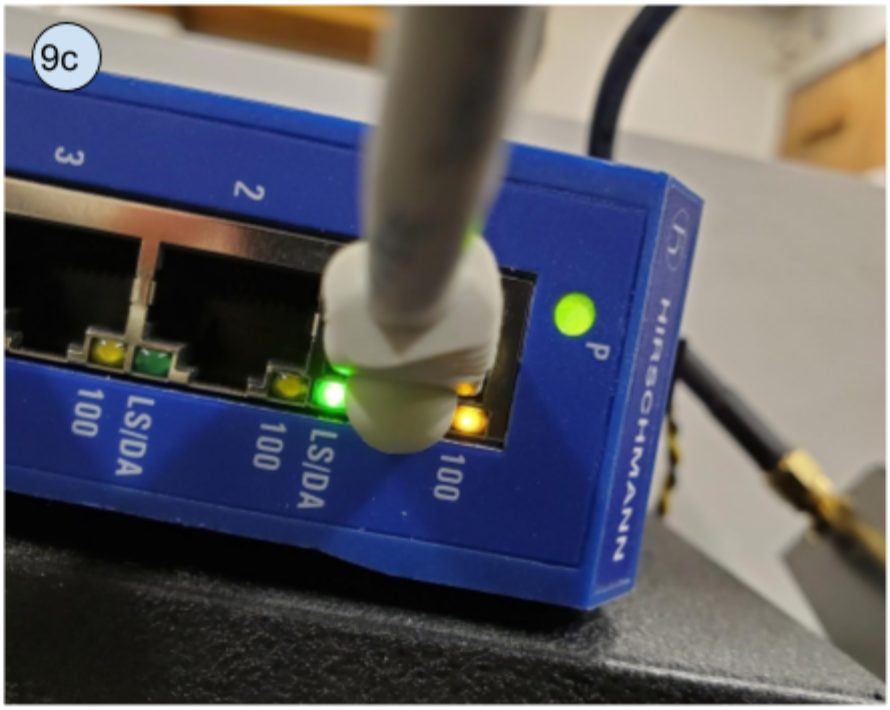
Insert replacement router and reconnect power, ethernet and serial cables as shown

Plug power cable back in



Observe activity LEDs ~ 30 seconds
(should blink intermittently on startup)





Within 2 minutes of restoring power to the white enclosure, confirm there is led status light activity a) on the router face panel next to the serial B connection, b) on the router rear panel next to the ethernet A connection, c) on the corresponding hub port connected to the router

AMIGOS repair visit summary checklist

Cavity Camp -- AMIGOS3A -- “Skua”

- ❏ Photograph tower structure and any apparent damage
- ❏ Climb to white enclosure, inspect/tighten connections and photograph (see pages 2-4)
- ❏ Open enclosure and photograph
- ❏ Locate ‘CR 1K’ ethernet connection on white enclosure exterior and follow interior patch cable to ethernet hub inside enclosure
- ❏ Switch this ethernet patch cable to another available port on the hub

Channel Camp -- AMIGOS3C -- “Adelie”

- ❏ Photograph tower structure and any apparent damage
- ❏ Climb to white enclosure, inspect/tighten connections and photograph (see pages 2-4)
- ❏ Open enclosure and photograph
- ❏ Inspect connections to router (see pages 11 for router location and connections)
- ❏ If no obvious issue with connections, perform router replacement procedure (see pages 10-11)
- ❏ Observe and, if possible, tighten connections to ultrasonic ranger and light sensors at the ends of the cross-boom