UNAVCO

QUICK SETUP GUIDE
Campaign GPS System

1

Inside the Pelican case, the system is supplied with a GPS receiver, an antenna, two 18 amp hour batteries, a solar charge controller and all the cables to interconnect the system. Typically one 40 watt solar panel is provided per system.

2

The GPS system Pelican cases are set up to connect easily to exterior components with the lid securely latched against the elements. You will find two bulkhead connectors on the exterior of the case. One is an attachment for the solar panel, and the other is for the antenna cable. (**NOTE: The solar panel should only be connected to the system once the batteries are connected to the solar charge regulator)

3

A Trimble Net R9 GPS receiver fits into the left front recess with the connections on the back of the receiver to the right side of the case. Occasionally a campaign system will be outfitted with Trimble 5700 or R7 receiver. For these situations, the setup will be the same.

4

On the right side of the case, near the front, is a Genasun Solar Charge Controller. Charge controllers regulate the voltage output from the solar panels to prevent the batteries from being over charged and too much voltage going to the receiver. Additionally, the charge controller will disconnect power to the receiver if the battery becomes too low to protect battery health. Connections are pre-wired to the charge controller. You will see the male DC receiver power coming from the "LOAD" and the female black Weatherpack connection coming from the "BATT" connection.

5

In the auxiliary cables included you will find two male and one female Weatherpack/ring terminal connections. Often these are already attached to the batteries and both batteries will have male and female weatherpack connections.These are used to connect the two batteries in parallel and to the charge controller. The Weatherpack connection is keyed and will clip together when fully secure. Ensure the wing nuts on the bolts connecting the ring terminals to the battery are tight. Don't forget – connect the leads and terminals **black-to-black** and **red-to-red**!

6

The case foam has recesses to fit two batteries as shown above. To connect the batteries in parallel, you must have a battery with two Weatherpack connections (male and female) on the right so it can be connected to both the charge controller and the other battery. Start by connecting the charge controller to the right battery so the male-female paring is correct. The combined voltage should be ~12-13VDC.

7

Once the batteries have been connected you may connect the solar panel cable to the case bulkhead. Remove the protective caps from the bulkheads and check the black rubber O-ring in the green Amphenol connector coming from the panel is still in place to prevent moisture from entering the system. This connection is keyed for correct polarity. Insert the connection into the bulkhead and twist the sleeve until you feel it lock into place. The red dots should be aligned when the connection is secure. Verify the LED on the front of the charge controller is flashing status messages (will depend on solar conditions).

8

The antenna connection to the receiver passes through a TNC bulkhead installed on the front case wall. Use the small (~50cm long) coaxial antenna cable to connect the GPS receiver to the TNC bulkhead. Please be mindful to not cross thread the connections.

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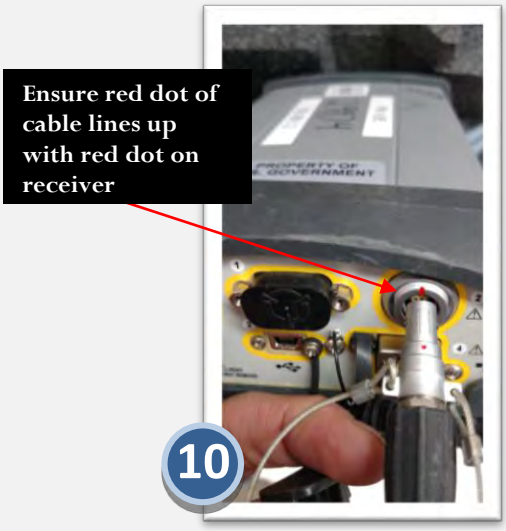
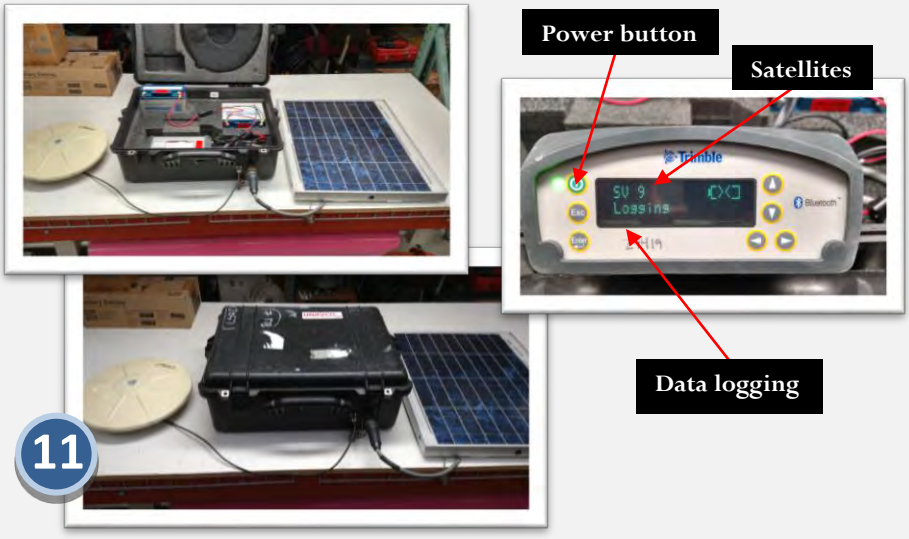
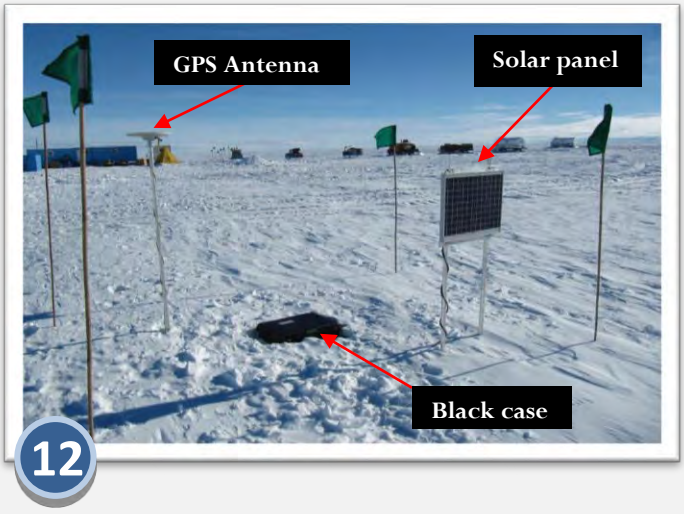


The long coaxial cable provided in the case will extend from the external TNC antenna bulkhead connection to the GPS antenna. Install the antenna on your monument *before* connecting the cable. Be careful to not kink the cable or get snow, water, dirt etc. in the cable connection to ensure good cable transmission and quality data.

The DC power cable for the GPS receiver is pre-wired to the load connection on the charge controller. The NetR9 receiver has only one possible location to insert the 7 pin LEMO connecter (labeled port 2). The port and connector are keyed for proper insertion – **red dot to red dot,** but **be careful** and do NOT twist as the pins are delicate and very easy to bend. To remove, pull back on the metal collar and the connector will be released from the receiver. To shut down, hold the green power button on the front for 3 seconds and disconnect the power cable.





The UNAVCO default receiver configuration turns the receiver on when it receives power. For this reason, powering the receiver is the last step in system assembly. The system should be complete at this point. Before closing the lid, using the display screen on the front, verify the NetR9 is seeing satellite vehicles (SV) and that it has started Logging data. The internal receiver battery symbol will have an "X" through it if incoming voltage is less than 13V or will charge if incoming voltage is higher. Perform a final check of the wiring. Carefully close the lid without pinching any cables and fasten all the latches.

Above is a typical snow installation. Your equipment and arrangement may vary. Black cases installed on rock will often have the panel secured to the top of the lid. The GPS receiver is now recording the antenna's position and you are ready to move to the next station!

If you have problems or questions, call UNAVCO at 303-381-7500 or Crary Lab x4239 and ask for your field engineer!