Visually inspect the unit. Any signs of lightning damage to electrical or electronic hardware certainly indicates the component is damaged.

Note: All the following steps are done with the AC voltage **ON** to the rectifier and with the battery connected (except where noted).

Test to see if the Communication Module is damaged:

- The Communication Module has a Green power LED, which is on steady, and a Blue GPS LED which blinks once per second. If both LEDs are currently working, the Communication Module is assumed good.
- If the Communication Module does not show the Green power LED:
  1. Check the 10A fuse on the Interface Board
  2. Disconnect the 16 pin, Interface Cable from the front of the Communication Module
  3. Replace the existing 6 volt battery with a fully charged 6 volt battery
  4. The Green power LED should come on immediately with the Blue GPS LED following within 5 minutes.
  5. If this happens, the problem is likely with the other components

Testing other components:

- Symptom: **Unit will not power up**

1. Make sure the AC power to the Rectifier is ON. Disconnect the 6 volt battery.
2. Check the 10A fuse on the Interface Board
3. With your meter set to AC Voltage, measure the voltage at the two screws of the Phoenix Connector located on the Interface circuit board, which correspond with the two pins marked “Supply 60V MAX”. If you a read voltage level that matches the taps, where the wires are terminated, go to Step 4. If not, troubleshoot the AC wiring.
4. Remove both Phoenix connectors from the Surge Suppression module and then remove the Surge Suppression module from the Interface Board. Plug the 8-pin Phoenix Connector directly into the Interface Board in the appropriate place. If the Interface Board powers up normally, then the Surge Suppression Module has failed and should be replaced If the Interface Board does not power up, move on to Step 5.
5. Remove both Phoenix Connectors from the Interface Board and remove the Interface Board from the SnapTrack holder. Disconnect the Interface Cable from the Interface board and the Tamper Alarm wires from the 11-pin connector (be careful not to bend the pins). With a new Interface Board, attach the Interface Cable and the 8-pin Phoenix Connector then observe the Interface Board. If it powers up as normal, connect the 11-pin, Tamper wire in the appropriate terminal and remove the 8-pin Phoenix Connector from the Interface Board. Insert the Interface Board into the SnapTrack holder. Repeat Step 4 to determine if the Surge Suppression Module is also damaged? If the Interface Board does not power up as normal, move on to Step 6.

6. Disconnect the Interface cable between the new Interface Board and the Communication Module. Using a new Interface cable, make connections between the new Interface Board and the Communication Module. Attach the Phoenix connector to the new Interface Board. If the new Interface Board powers up, repeat Step 5 using the old Interface Board and repeat Step 4 using the old Surge Suppression module. If either repeating Step 5 or Step 4 fails, replace that component with a new one. If the new Interface Board fails to power up, there is an issue with the Communication Module.

7. Observe the Interface Board. If the LEDs are all blinking, an overvoltage situation exists and must be corrected. If the LEDs are not blinking, connect the 6 volt battery to the Hero 2 rectifier monitor.

- Symptom: **Unit has incorrect Output Voltage/Output Current readings on the website**

1. Make sure the AC power to the Rectifier is ON and the battery is connected to the Hero 2 monitor.

2. With your meter set to DC Voltage (or mVolt), measure the voltage of the two screws on the Phoenix Connector located on the Interface Board, which correspond with the two pins marked "*Rect 0-150V*" (or "*Shunt 0-500MV*"). If you read a voltage level that matches the DC output of your rectifier, go to Step 3. If not, troubleshoot the wiring.

3. Remove the Phoenix Connectors from the Surge Suppression module and then remove the Surge Suppression module from the Interface Board. Plug the 8-pin Phoenix connector, only, into the Interface Board at the appropriate place. Issue a "Get Data" command by holding down the "Data/Reset" button for three seconds. Now compare the readings on the website to the expected Voltage (or Amperage) on the machine, make sure the "Age of Last Data" column is no more than a minute or two old. If the unit shows the correct Voltage (or Amperage) the Surge Suppression Module has failed and should be replaced. If there is no change in the readings, move on to Step 4.

4. Remove the Phoenix Connector from the Interface Board and remove the Interface Board from the Snap Track holder. Disconnect the Interface Cable from the Interface board and the Tamper Alarm wiring from the 11-pin connector (be careful not to bend the pins). With a new Interface Board, attach the Interface Cable, the 8 pin Phoenix Connector and issue a "Get Data" command by holding down the "Data/Reset" button for three seconds. Using your meter set to DC voltage, compare the readings at the website to the readings at the two screws on the Phoenix Connector located at the Interface Board, which correspond with the two pins marked "*Rect 0-150V*" (or "*Shunt 0-500MV*"). If they are now correct, repeat Step 2 to determine if the Surge Suppression Module is also damaged. If the readings are still not correct, move on to Step 5.

5. Remove the Interface cable between the Interface board and the Communication Module. Using a new Interface cable, make connections with the new Interface Board and the Communication Module. Attach all Phoenix connectors to the new Interface Board. Issue a "Get Data" command by holding down the "Data/Reset" button for three seconds. Using your meter set to DC voltage, compare the readings at the website to the readings at the two screws on the Phoenix Connector located at the Interface Board, which correspond with the two pins marked "*Rect 0-150V*" (or "*Shunt 0-500MV*"). If the readings are correct, repeat Step 3 for the Old Interface Board and Step 2 for old the Surge Suppression module. If the readings on the website don't match the meter readings, there is an issue with the Communication Module.

- Symptom: **Unit won't Interrupt/Fails the Interruption test**

1. From the website, select the unit (left click on the unit ID number).
2. Hover your mouse over the "Command" menu and choose the "Send Command" tab.
3. From the "Send Command" menu choose the "Check Interrupter" command. Send & confirm.
4. Go back to the User Main page, hover your mouse over the "View" menu and select the "Raw Data" tab.
5. When the unit has completed operating the "Check Interrupter" command, there is a line of data that comes back in the "Raw Data" page that looks like this:

: **:Relay PASS (X->0 mV) | GPS PASS**

6. The unit will indicate Pass/Fail for the Relay and/or GPS. The instructions below are provided if the unit fails the "Relay" portion of the interruption test.
7. If the unit Fails the GPS portion, a new Cell/GPS antenna is called for or the GPS chip has failed in the Com Module.

Trouble Shooting the (on board) Pilot relay and External Mercury relay:

1. Make sure the AC power to the Rectifier is ON and the 6 volt battery is connected to the Hero 2 monitor.
2. With your meter set to AC voltage, measure the voltage at the two screws on the three-position Phoenix connector located on the Surge Suppressor module, which correspond to the "C" and "NO". You should read ~24 volts AC on this position. If voltage is present, go to Step 6. If no voltage is present, go to Step 3.
3. Remove the Surge Suppression module from the Interface Board and remove the Phoenix connectors from the Surge Suppression module. Connect the Phoenix connectors to the appropriate receivers on the Interface Board and measure the AC voltage on the "C" and "NO" pins again. If voltage is present, a new Surge Suppression module is indicated. If no voltage is present, go to Step 4
4. Turn off the AC power. Set your meter to read resistance (Ohms). Check the continuity of the three control wires (yellow wires) for the external relay. Make sure you put your test leads on the lugs of your taps, the screw heads of the control points of the relay and the screws on the Phoenix connectors. Troubleshoot as necessary for any broken connections.
5. Turn the AC power on
6. Hold down the "Interrupter Relay" button on the Interface Board for at least ten second to invoke a 3 second off and 7 second on interruption cycle.
7. With your meter set to AC Voltage, measure the voltage of the two screws on the three-position Phoenix connector, located on the Interface Board, that correspond with the "C" and "NO" positions. Wait until the Interruption Cycle is started, before you do this. You should read No AC voltage for 3 seconds and ~24 VAC for 7 seconds on the pins. If you see this pattern, move on to step 8. If you read a constant, ~ 24VAC across these pins, with the unit interrupting, a bad pilot relay is indicated and the Interface Board should be replaced. If you read a constant 0 VAC across these pins, check the voltage across the interrupter relay. If it's ~24 VAC, then the pilot relay is defective. If it's 0 VAC, then the wiring to the taps is the issue (see Step 4).

8. If you read ~24 VDC for 3 seconds and no voltage for 7 seconds, a bad External Mercury relay is indicated, and it should be replaced.

Trouble Shooting the (on board) Pilot relay and External SSR W/Bypass:

1. Make sure the AC power to the Rectifier is ON and the 6-volt battery is charged & connected to the Hero 2 monitor.
2. Make sure the individual black power wires (not the **BLACK JACKET** wires) from the SSR Control Board are attached to a **12-18 VAC** power source on your taps or to the surge module. Take an AC measurement of these wires at the 2-pin phoenix connector located at the top of the SSR control. If the measurement does not match the supply voltage to your unit (black wires, wired at the surge module) or the taps where you are sourcing the voltage, trouble shoot the wires.
3. Start an interruption cycle by pressing, and holding, the Red Interrupter Relay button on the Interface board for at least ten seconds.
4. Release the SSR Control from the enclosure
5. From Left to right, on the black wiring block (at the bottom of the SSR Control board), the wires should be Grey Jacket - Black wire/Red wire, Black Jacket - Black wire/Red wire. On the SSR, wiring should be Grey Jacket - Black wire on position 4, Red on position 3. On the Bypass relay, for the Clear relay, should be Black Jacket - Black wire on the “B” position, Red wire on the “A” position. For the 2 Bypass relay configuration, should be Black Jacket – Black wire to the connected two black wires, and these wires should be attached one each to the bypass relays, Red wire to the connected two red wires, and these wires should be attached one each to the bypass relays. Polarity does not matter on the 2-bypass relay configuration.
6. Once the unit starts interrupting:
    a. With your meter set on VDC, take a reading across the 2 right pins on the black wiring block on the bottom of the control board. You should get a constant ~12 VDC. If you don’t, replace the SSR control board
    b. Measure the VDC across the black clad wires, where they attach to the bypass relay. If you have VDC at the control and none at the bypass, trouble shoot the wiring
    c. Next, take the same reading on the left side of the black wiring block. The reading should be ~12VDC for the 7 seconds the RED led (on the interface board) is off and >2VDC for the 3 seconds it is on.
    d. Measure the VDC across pins 3 & 4 on the SSR. If you have the proper reading at the control but not at the SSR, trouble shoot the wiring
    e. If the reading is a constant ~12VDC or >2VDC on the SSR Control at the two left most pins, remove the 3-pin phoenix connector from the top of the control board
    f. With your meter set on continuity, put your probes on the screw head of the center wire (black wire) and one of the other two positions. Make sure you see the Red Interrupter LED cycling. If you get an alternating of tone/no tone, the pilot relay on the interface board is good.
    g. If you get constant tone, or no tone, remove the 8-pin and 3 pin phoenix connectors from the surge module, remove the surge module from the interface board and place the 8-pin and 3-pin connectors directly into the interface board
    h. With your meter set on continuity, put your probes on the screw head of the center wire (black wire) and one of the other two positions. Make sure you see the Red Interrupter LED cycling. If you get an alternating of tone/no tone, the pilot relay on the interface board is good and the surge module is blown. If you get a constant tone, or no tone, the Interface board need to be replaced
    i. Test continuity again with a new surge module in place (all wires in place). Also, test the shunt to see of the unit is cycling.

   j. If you get the tone/no tone from the wires, and the rectifier is not interrupting, then the SSR Control board is bad and should be replaced
7. If you have positive results from tests a, b, c & d, the problem is with the SSR, Bypass relay(s) or the wiring between the Rectifier and the SSR assembly.
8. Leave the 6VDC battery connected and power down the rectifier
9. Remove one of the blue interrupter wires from its landed position
10. Turn the AC back on to the rectifier, the unit will still be interrupting.
11. With your meter set on continuity, put your probes on the end of the wire marked “Rectifier-“and the #1 position on the SSR. You should get constant tone. If you don’t, the bypass relay is bad.
12. With your meter set on tone, put your probes on the end of the wire marked “Pipe “and the #2 position on the SSR. You should get constant tone. If you don’t, the bypass relay is bad
13. With your meter set on tone, put your probes on #1 & #2 on the SSR you should get tone/no tone. If you don’t, the SSR is bad
14. If you get positive results from test 11, 12 & 13, the problem is how the SSR assembly is wired to the rectifier.