PROGRESS SOLAR SOLUTIONS®

TROUBLESHOOTING GUIDE

SLT, SLTW, SHYB MODELS

Lights

Q) All 4 of my lights are not working.

- A**) First check circuit breaker:**
  - Set in the ON position (which is UP). Breaker should be showing red which means the system is hot.

- B) **Check Toggle Switch position:**
  - Toggle switch needs to be in the correct position for which component you are trying to use either Timer or photo cell. Refer to Label above the toggle switch for correct positioning.

- C) **Check the Battery Voltage of the unit**:

- ***IF Below 23.5 Volts*:**

  - To do this, use a multimeter and place it on the main connection for the positive. This will be one of the parallel connections on the batteries and the other lead should be on the main negative parallel connection.
    - If the Battery voltage is close or at the LVD set point (23 - 24.5volts)
      - The Unit has a LVD which will disconnect the lights if the battery voltage goes below the set point.
      - Units LVD set at 23.5 volts:
        - Trick turn off breaker for the lights, this will reset LVD, this allows you to see if the lights work, if not pasted the set point.
      - Then this would be the reason why your unit's lights aren't working. You will need to charge the unit back up. Either using solar, a/c charger or generator, if possible or equipped with one.
      - You will need to get the resting voltage of the unit above 25.5 volts before the lights will be able to be turned back on.

- ***IF battery voltage is above the 23.5v fellow the steps below**:*

- D) **Check the connections:**
  - Check the J-Box which is located between the lights. Make sure all connections are free for corrosion and making a clean connection.

- E) **Check if you have continuity:**

- You will want to check the continuity going from the front box going to the lights to make sure you don't have a cut wire somewhere on the 12/4 coil cable.
    - To do this locate the color wires in the J-Box in between the lights. Using 1 lead place it on 1 colored wire and the other lead on the same-colored wire in the control box. You will need a co-worker to help with this and listen for the tone on your multimeter. If you don't hear the tone, then you have a cut wire. You will need to either replace the cable or fix it before the lights will work again.
- If you have continuity in all the wires, then check continuity in the breakers.
    - To do this, Place one lead of the multimeter on the top side of the breaker and the other one on the bottom side. With the breaker on (up position) you should get a tone. If not then you may have a bad breaker.
- If you still have continuity read below

- F) **Check if the voltage is getting to your lights:**
    - If you checked the voltage on the batteries with you multimeter and say you have 26.5 volts DC, then you should be getting 25.5 volts DC to your lights. (1 volt drop because of wire travel) Check the connections inside the J-Box located between the lights for the voltage.

Q) Timer not working?

- A) **Refer to Timer guide with steps on how to setup the timer.**
    - If no lights on are on the timer at all?
        - Make sure the breaker is on (In the UP position)
        - Check the battery on the timer. This is located on the back side of the timer itself.
        - Take a picture before disconnecting the wires to the timer.
        - Remove the 4 screws holding the timer in place.
        - Then remove the battery backing and Replace with a new battery and reinstall the timer.

Q) My Tristar controller is reading a fault. What does it mean?

- A) **Refer back to the TriStar owner's manual for fault code**.
    - Troubleshoot from there.
    - Remember if the Tristar is in an error mode it will not allow any solar input to charge the batteries.
    - Try resetting the Tristar.
        - Turn off the breaker, wait for a minute and turn the breaker back on.

Q) Can I charge my unit with a wall outlet or generator?

- A) **Yes, there is an on-board AC battery charger built into your unit**.
  - There is a receptacle located on the rear passenger side that you can plug a power supply to the battery charger.
  - Remember to use a **20amp** circuit if you're getting power from a wall receptacle. The battery charger uses 14 amp of AC current. If you're using a generator, use at least a 3KW (running watts) sized generator.

Q) How long does it take the AC battery charger to recharge my batteries?

- A) **That depends on the depth of discharge of the batteries.**
  - The batteries will normally recharge within 8 to 12 hrs. depending on the depth of discharge. (22vdc-24.5vdc)
  - If your batteries are lower, then the above the ac charger will take longer to charge the battery bank if it will charge them at all.
    - **NOTE:** Battery banks that are below **20vdc** may not come back at all. Therefore, it is very important to keep the solar wings up and breakers on for the solar charge controllers, even when not in use, to maintain the battery bank.

Q) What are some appropriate solar input voltages?

- A) **The solar input voltage will vary depending on what stage of charging your unit is in.**
  - You will see solar input voltages between 80 volts to 12 volts DC. If the unit is in the sunlight, otherwise you may see much lower voltages.
  - It's important to note that is it's about the voltage of the solar panels but about the amperage going into your batteries.

Q) The solar panels don't seem to be charging according to the remote meter (if equipped), no wattage showing, is there something wrong?

- A) **No, the Tri-Star remote meter will only display what wattage the batteries are expecting.**
  - Exp: one side of the solar panel is showing 113 watts, the other side pointed in the same direction is only showing 30 watts.
    - This is because the voltage of the battery bank is almost topped off and is only allowing (x) number of solar panels to provide power to the battery bank.

Delta Volt Fuel Gauge

Q) My fuel gauge shows my battery capacity in the RED for several days in a row. Is my unit charging?

- A) **YES, once your fuel gauge enters the RED it will not move back up the LED line till your battery voltage reach's 26 volts.**
- If your unit is working 7 days a week and you're in the Fall Winter months, it's hard for the SLT units to recover enough solar input in one day to get the battery voltage above 26 volts. Read the user manual on the delta-volt for more information on LED color code.
  - The new delta-volt fuel gauges reset themselves every 7 mins to give the customer a better accurate reading of battery capacity.

Wind Turbine (SLTW Models)

Q) How do I know the wind turbine is producing power?

- A) **The wind turbine switch must be in the ON position.**
- If there's enough wind to rotate the turbine and produce power, a **solid green led light** will illuminate on the bottom side of the tail fan.
  - If you see **flashing green led light**, once per second, then your wind turbine is in regulation mode.
    - This is when the battery voltage reaches it's set point and stops charging the batteries.
  - If you see **Flashing green led light**, 10 per second then the wind turbine is in over speed protection mode. Due to high winds over 50mph. once the wind is below 50mph the wind turbine will start rotating again, to produce power, if needed.

Gas/LPG Hybrid Generator (SHYB Models)

Q) Why don't I have any power to my generator?

- A) **Check to make sure the main Disconnect Switch located in the front of the unit is in the ON position.**
  - Check to make sure the light for the generator battery is **ON** and the led indicator is lite up.
  - Check and make sure the toggle switch for the generator itself it in the **RUN** position.
- Once you have checked the above steps locate the Dynagen controller in the control panel. It should be on and will say "NOT IN AUTO, WAITING TO START"

Q) How do I manually start the generator?

- A) **Make sure the generator has the proper fuel type you will be using i.e., LPG or Gasoline.**
- Make sure the Oil is full.
- Then on the Dynagen Auto start controller, push the auto button once then the run button, you will see a count down and then the generator will begin trying to start.

Q) If I manually start my generator, will it turn off with the auto start?

- A) **No, if you manually start the generator you need to manually turn off the generator.**

Q) How to I put the generator in auto start?

- A) **To do this all you need to do it make sure the Dynagen controller is on. (IF it isn't push, the off button and wait for it to load and turn on)**
- After it's on, Simply push the Auto button on the controller and it should now read across the screen "IN AUTO WAITING TO START".
- Now it's in the auto mode.

Q) My generator is not cranking.

- A) **There could be several reasons why the generator did not crank.**
  - Check that the propane tanks are open and propane tanks have propane.
  - Check to make sure generator toggle switch is in the ON position.
  - Check the breaker on the generator is ON.
  - Check your oil level, generator has a low oil shut-off which will not allow generator to turn ON if oil level is low.

- If you have manually cranked generator and it's not cranking over
  - Check starting battery leads make sure these leads are across the main battery bank for only 12V. The Negative lead should be on the main negative i.e., parallel connection. The positive lead should be in the middle of the battery bank across 12V.
- Check with a multimeter to make sure the starter is getting 12-14 volts only.
- If while using the multimeter you see 15-19 volts or higher, remove the red lead and place it in the correct spot for 12-14 volts. The red lead should be in the middle of the battery bank.
- Try starting the generator without using the auto start controller.
  - To due this use, the toggle switch located on the generator itself and see if it starts.
  - If the generator doesn't start check regulator
    - Open the connection between the regulator and then generator. There should be a small 2-foot hose between the regulator and the generator, open the connection slightly and make sure you hear/smell propane.
- There should be a small cube relay and socket located on the generator, it will have a few green wires, white wires and black wires going to and from it. This relay controls the signal for the auto start controller. Make sure the cube relay is there and isn't blown.
  - If the relay is missing or blown replace and try starting the generator again.

Q) My Dynagen had an error code, "Failure to Start", or "Under Voltage" what may cause this?

- A) **Follow the same procedure listed above.**

Q) My Dynagen had an error code, "Failure to Start", or "Low Frequency" what may cause this?

- **A) Check to make sure you are getting the correct hertz out of the generator (60+ HZ)**
  - If you aren't getting 60+ HZ this is why the generator is shutting down.
    - Check for a plugged or dirty air filter.
    - Check for poor fuel or an almost empty propane tank
    - Reduce the load from the generator, to see if this helps.
      - If you are trying to charge the battery bank and the battery bank is below 20volts or less this will cause the generator to over work past it's limits.
    - Plug the AC (shore power) in and charge the battery bank up past 22Volts dc. This will allow the generator to work within its limits.

Q) I got the generator running but I had to move the choke lever to the left to get it running.

- **A) If you have to close the choke lever to get the generator running, you probably have a leak in the fuel supply.**
- Check all gas fittings and fuel line connections for a leak.

Q) How often do I need to change the oil?

- **A) Ever 100 hrs. of use.**