

**TROUBLESHOOTING TABLES**

**TABLE 1 :** Troubleshooting System Wiring, Switches, and Fuses

|  |  |  |  |
| --- | --- | --- | --- |
| **Symptom** | **Cause** | **Result:** | **Action:** |
| Load does not operate at all | Switches in the system are turned off or are in the wrong position | Photovoltaic electricity cannot be supplied to loads or batteries | Put all switches in correct position |
| System circuit breakers or fuses are blown |  | Reset circuit breaker or replace fuse |
| Load operates poorly or not at all | There is a high voltage drop in the system. Check for undersized or too-long wiring, over-sized loads, a ground fault, or a defective diode | Inadequate voltage to charge batteries or operate loads | Increase wire size, reduce load size, find and correct ground faults |
| Wiring or connections are loose, broken, burned, or corroded |  | Repair or replace damaged wiring or connections |
| Wiring or connections are short-circuited or have a ground fault |  | Repair short circuits or ground faults |

**TABLE 2** : Troubleshooting Loads

|  |  |  |  |
| --- | --- | --- | --- |
| **Symptom** | **Cause** | **Result:** | **Action:** |
| Load does not operate at all | Load is too large for the system, or inadequate sun | Shortened battery life, possible damage to loads | Reduce load size or increase array or battery size |
| The load is turned off inadvertently. Check for load switches shut off, blown fuses or tripped breakers, tripped motor thermal breaker, or an unplugged line cord | Load does not operate | Repair or replace load Reset switches |
| The load is in poor condition. Check for short circuits in load, a broken load, or an open circuit in the load | Shortened battery life, possible further damage to loads | Repair or replace load Check load manufacturer for service information |
| Load operates poorly or lot at all | There is inadequate voltage at load. Check for undersized or too-long wiring, oversized loads, or a ground fault | Inadequate voltage to charge batteries or operate loads | Increase wire size, reduce load size, find and correct ground faults |
| Wiring or connections are loose, broken, burned, or corroded |  | Repair or replace damaged wiring |
| Small, “phantom” load keeps inverter idling, draining battery |  | Turn off phantom load or replace it with one not requiring photovoltaic power |
| Wiring polarity is reversed | Loads operate backwards or not at all | Correct wiring polarity |

**TABLE 3** : Troubleshooting Batteries with Low Voltage

|  |  |  |  |
| --- | --- | --- | --- |
| **Symptom** | **Cause** | **Result:** | **Action:** |
| No apparent battery defect | Load too large, on too long, or inadequate sun | Battery is always at a low state of charge | Reduce load size or increase system size |
| Batteries too cold | A higher voltage is required to reach full charge | Insulate battery enclosure, bury enclosure in ground, move to heated space, install controller with temperature compensation, or repair or replace probe |
| Low electrolyte level | Overcharging | Loss of battery capacity See Table 4 for further information | Add distilled water, unless batteries damaged beyond repair |
| Battery will not accept a charge | Damaged battery | See Table 4 for further information |  |
| Voltage below charging resumption setting | Faulty charge controller | Excessive discharge depth  See Table 4 for further information | Adjust settings or repair or replace charge controller |
| Voltage below low voltage disconnect setting | Faulty charge controller | Excessive discharge depth  See Table 4 for further information | Adjust settings or repair or replace charge controller |
| Voltage loss overnight even when no loads are on | Faulty blocking diode | Reverse current flow at night discharging batteries | Replace diode |
| Voltage increasing very slowly, even when no loads are on | Controller not in full charge, stuck in float charge | Inadequate current flow to fully charge batteries | Repair or replace charge controller |
| Voltage not increasing even when no loads are m and system is charging | Otherwise faulty charge controller | No power from array going into batteries | Repair or replace charge controller |
| Switch, circuit breaker, or fuse open, tripped, or blown | No power from array going into batteries | Close switch, reset circuit breaker, or replace fuse |
| Loose, corroded, or broken wiring | Less power from array going into batteries | Repair or replace damaged wiring |
| Shaded modules, broken cell, or disoriented modules | Array output reduced | Remove source of shading, replace module, or correct module orientation |
| Wiring too long or undersized | Voltage reduced | Increase wire size |
| Voltage just above charge resumption setting, but controller not charging batteries | Faulty or mis-positioned temperature probe or poor connection at ‘“battery sense” terminals on charge controller | Charge controller thinks batteries are cooler than their actual temperature | Repair, replace, or reposition probe |
| Inaccurate charge controller dial | Misadjusted charge controller |  | Reset controller dial or replace controller |

**TABLE 4** : Troubleshooting Batteries That Will Not Accept a Charge

|  |  |  |  |
| --- | --- | --- | --- |
| **Symptom** | **Cause** | **Result:** | **Action:** |
| No apparent battery defect | Load too large, on too long, or inadequate sun | Battery is always at a low state of charge | Reduce size of load or increase size of system |
| High water loss | Overcharging | Heat damage to plates and separators | Replace battery, repair or replace charge controller |
| Electrolyte leakage shorts | Broken/leaking container | Sulfation, lead sulfate | Replace battery |
| Muddy electrolyte material, shorts between plates | Age | Shedding of plate | Replace battery |
| Discolored or odorous electrolyte | Contaminated electrolyte | Battery failure | Replace battery |
| No symptoms other than not accepting a charge | Undercharging, usually without adding water | Sulfation, possibly lead sulfate shorts between plates | Replace battery |
| Left uncharged too long | Sulfation, or plates hard when scratched | Replace battery |
| Cracked partition between cells | Discharge between adjacent cells | Replace battery |
| Hammering cable connections on to terminal posts | Shorts between terminal post strap and plates, electrolyte leak | Replace battery |
| Misaligned plates and separators | Treeing shorts between bottoms of plates | Replace battery |
| Plate material carried to top of plates | Messing shorts between tops of plates | Replace battery |
| Shorts between plates and straps | Grid top broken and moved upward to strap, lead rundown from strap to plate | Replace battery |
| Overcharging a sulfated plate | Spalling (shedding of chunks of plate material) | Replace battery |
| Overcharging | Disintegration of positive plates | Replace battery |
| Specific gravity and temperature too high for too long | Soft negative plates | Replace battery |
| Too many shallow charging cycles | Cracked negative plates | Replace battery |
| Holes in separators | Loose fragment of grid, buckled plates, lumps or dendrites on plate, weak spot in separator, vibration | Replace battery |

**TABLE 5** : Troubleshooting Batteries with High Voltage

|  |  |  |  |
| --- | --- | --- | --- |
| **Symptom** | **Cause** | **Result:** | **Action:** |
| Voltage over charge termination setting and/or high water loss | Faulty or nonexistent charge controller | Shortened battery life, possible damage to loads | Replace with charge controller with lower charge termination setting |
| Battery storage too small for array | Shortened battery life, possible damage to loads and batteries | Install more batteries |
| Misadjusted charge controller | Shortened battery life, possible damage to loads and batteries | Adjust charge controller |
| Mismatched battery and voltage regulator | Shortened battery life, possible damage to loads and batteries | Replace charge controller, or change setting on adjustable units |
| Batteries are cold and charge controller has temperature compensation | Shortened battery life, possible damage to loads | Insulate batteries, or move to warm environment |
| High water loss | Batteries are too hot | voltage at which gassing starts is lower than normal | Insulate battery enclosure, and/or provide ventilation |
| Infrequent maintenance | Low water levels, battery damage | Shorten maintenance interval |
| Voltage only slightly above charge termination setting | Faulty or mis-positioned temperature probe or poor connection at “battery sense” terminals on charge controller | Charge controller thinks batteries are warmer than their actual temperature | Repair, replace, or reposition probe |

**TABLE 6** : Troubleshooting Charge Controllers

|  |  |  |  |
| --- | --- | --- | --- |
| **Symptom** | **Cause** | **Result:** | **Action:** |
| Battery voltage below charge resumption setting | Faulty charge resumption function in charge controller | Excessive battery discharge See Table 5 for further information | Repair, readjust, or replace charge controller |
| Battery voltage just below charge resumption setting, but controller not charging batteries | Faulty or mis-positioned temperature probe or poor connection at “battery sense” terminals on charge controller | Charge controller thinks batteries are cooler than their actual temperature | Repair, replace, or reposition probe |
| Battery voltage below low voltage disconnect setting | Faulty low voltage cutoff in charge controller | Excessive battery discharge See Table 4 for further information | Repair or replace charge controller |
| Battery voltage loss overnight even when no loads are on | Faulty blocking diode, no diode, or faulty charge controller | Reverse current flow at night, discharging batteries | Replace or add diode, or repair or replace series relay charge controller |
| Old or faulty batteries | Batteries self-discharging | Replace batteries |
| Battery voltage over charge termination setting and/or high water loss | Faulty or nonexistent charge controller | Shortened battery life, possible damage to loads and batteries | Repair or replace controller and possibly batteries |
| Misadjusted charge controller | Shortened battery life, possible damage to loads and batteries | Repair or replace controller and possibly batteries |
| Mismatch battery and voltage regulator | Shortened battery life, possible damage to loads and batteries | Change charge controller, or change setting on adjustable units |
| Controller always in full charge, never in float charge | Shortened battery life, possible damage to loads | Repair or replace controller and possibly batteries |
| Battery voltage just above charge termination setting, but controller still charging batteries | Faulty or mis-positioned temperature probe or poor connection at “battery sense” terminals on charge controller | Charge controller thinks batteries are warmer than their actual temperature | Repair, replace or reposition temperature probe or change charge controller |
| Buzzy relays | Too few batteries in series | Voltage is low | Reconfigure or add batteries |
| Loose or corroded battery connections | High voltage drop | Repair or replace cable |
| Low battery voltage | See TABLE 3 for more information | Repair or replace batteries |
| Erratic controller operation and/or loads being disconnected improperly | Timer not synchronized with actual time of day | Controller turns on and off at wrong times | Either wait until automatic reset next day, or disconnect array, wait 10 seconds, and reconnect array |
| Electrical “noise” from inverter | Rapid and cut-off cycling | Connect inverter directly to batteries, put filters on load |
| Low battery voltage | See TABLE 3 for more information | Repair or replace batteries |
| Erratic controller operation and/or improper load disconnection | Faulty or mis-positioned temperature probe or poor connection at “battery sense” terminals on charge controller | Charge controller thinks batteries are warmer than their actual temperature | Repair, replace or reposition temperature probe or change charge controller |
| High surge from load | Battery voltage drops during surge | Use larger wire to load, or add batteries in parallel |
| Otherwise faulty charge controller, possibly from lightning damage | Loads disconnected improperly, other erratic operation | Repair or replace charge controller and check system grounding |
| Adjustable low voltage disconnect set incorrectly | Loads disconnected improperly | Reset low voltage setting |
| Load switch in wrong position on controller | Loads never disconnect | Reset switch to correct position |
| Charge controller has no low voltage disconnect feature | Loads never disconnect | If necessary, replace charge controller with one with a low voltage disconnect feature |
| Fuse to array blows | Array short circuited with batteries still connected | Too much current through charge controller | Disconnect batteries when testing array’s short circuit current |
| Current output of array too high for charge controller | Too much current through charge controller | Replace charge controller with one with a higher rating |
| Fuse to load blows | Short circuit in load | Unlimited current | Repair short circuit or replace load |
| Current draw of load too high for charge controller | Too much current through charge controller | Reduce load size or increase charge controller size |
| Surge current draw of load too high for charge controller | Too much current through charge controller | Reduce load size or increase charge controller size |
| “Charging” at night | Normal operation for some charge controllers up to two hours after dark | No appreciable energy loss | Check the system later that night |
| Timer not synchronized with actual time of day | Controller turns on and off at wrong times | Either wait until automatic reset next day, or disconnect array, wait 10 seconds, and reconnect |

**TABLE 7** : Troubleshooting Inverters

|  |  |  |  |
| --- | --- | --- | --- |
| **Symptom** | **Cause** | **Result:** | **Action:** |
| No output from inverter | Switch, fuse, or circuit breaker open, blown, or tripped, or wiring broken or corroded | No power can move through inverter | Close switch, replace or reset fuse’ or circuit breaker\*, or repair wiring or connections |
| Low voltage disconnect on inverter or charge controller open | No power available to inverter | Allow batteries to recharge |
| Time delay on inverter startup from idle | Few second delay after starting load | Wait a few seconds after starting loads |
| High battery voltage disconnect on inverter open | Inverter does not start | Connect load to batteries and operate it long enough to bring down battery voltage Adjust high voltage disconnect on charge controllers |
| Motors running hot | Square wave inverter used | Harmonics of waveform rejected as heat | Change to DC motors or use inverter with quasi-sine or sinusoidal waveform |
| Loads operating improperly | Excessive current draw b load | Voltage from inverter too low for load | Reduce size of loads or replace inverter with one of larger capacity |
| Square wave inverter used |  | Change to DC motors or use inverter with quasi-sine or sinusoidal waveform |
| Defective inverter |  | Replace inverter |
| Motors operating at wrong speeds | Inverter not equipped with frequency control | AC frequency varies with battery voltage | Replace inverter with one equipped with frequency control |
| Inverter circuit breaker trips | Load operating or surge current too high | Excessive current draw by load | Reduce size of loads or replace inverter with one of larger capacity |
| Inverter DC circuit breaker trips | Inverter capacitors not charged up on initial startup | Excessive current draw by inverter | Install momentary contact switch and 15 ohm, 50 watt resistor in parallel with the circuit breaker, use it for a few seconds to charge capacitors on first start up |

**TABLE 8** : Troubleshooting Arrays

|  |  |  |  |
| --- | --- | --- | --- |
| **Symptom** | **Cause** | **Result:** | **Action:** |
| No current from array | Switches, fuses, or circuit breakers open, blown or tripped, or wiring broken or corroded | No current can flow from array | Close switches, replace fuses, reset circuit breakers, repair or replace damaged wiring |
| Array current low | Some modules shaded |  | Remove source of shading |
| Some array interconnections broken or corroded | Drop in output current | Repair interconnections |
| Defective bypass or blocking diodes | Drop in output current | Replace defective diodes |
| Some modules damaged or defective | Drop in output current | Replace affected modules |
| Full sun not available | Drop in output current | Wait for sunny weather |
| Modules dirty | Drop in output current | Wash modules |
| Array tilt or orientation incorrect | Drop in output current | Correct tilt and/or orientation |
| No voltage from array | Switches, fuses, or circuit breakers open, blown or tripped, or wiring broken or corroded | No power can move from array | Close switches, replace fuses, reset circuit breakers, repair or replace damaged wiring |
| Array voltage low | Some modules in series with others disconnected or bypass diodes defective | Drop in array voltage | Repair or replace modules, connections, or diodes |
| Wiring from array to balance of system undersized or too long | Drop in array voltage | Replace undersized wiring |

**TABLE 9** : Troubleshooting battery inverter ( Grid-tie battery backup and/or off-grid system ) :

Example : SMA Sunny Island 5048

|  |  |
| --- | --- |
| **Cause:** | **Action:** |
| Battery inverter not connecting to the running generator | * Check fuse on the generator * Ensure power allowed to be fed back into the generator * Check control relay |
| Display of the battery inverter dark and why is nothing shown on the display | * Check DC circuit breaker is ON * The battery fuse has been triggered |
| Battery inverter is not possible to change the parameter | * Check installer password has been entered correctly * Some parameters can only be changed in standby mode or in the QCG |
| Battery inverter always connect to the running generator for a brief time only | * The limit for the maximum permissible AC voltage or the minimum permissible frequency of the generator are too strict * Change voltage and/or frequency limits according to the technical data of generator |
| Stand-alone grid frequency not at 50 Hz | * Check Automatic Frequency Adjustment is activated or not |
| Output voltage too low when the battery inverter is started | * Check the AC output connection of the grid * Switch off some of the loads and restart the battery inverter |
| What happens when a battery cell can no longer be used | * Remove the unusable cell from battery bank * Change the battery voltage in the QCG under “New Battery” on battery inverter |
| When the QCG does not run once ? | * Switch off the battery inverter then switch it back on |
| “MMC operation failed” appears on the display | * Check the card ( on PC/laptop ) * Use a new MMC/SD CARD |
| Battery inverter stay on even though have been switched the DC circuit breaker to OFF | * Check perhaps battery inverter powered by AC side * Switch OFF all AC loads and disconnect them from battery inverter |
| Battery discharging even though the generator is running | * Check the voltage and frequency value * Check perhaps the fuses on the generator may have been triggered |
| Battery inverter continuously goes out after Low Battery Mode when restarting the device | * Start generator manually |

**TABLE 10** : Troubleshooting grid-tie inverter ( Sunny Tri Power ) :

|  |  |  |  |
| --- | --- | --- | --- |
| **Symptom:** | **Cause:** | **Result:** | **Action:** |
| high probability of an earth fault in the PV array. | The inverter has detected an earth fault in the PV array | have detected an **earth fault.** | * Check the strings for earth faults * The installer of the PV array must remedy any earth faults before the affected string is reconnected. * Do **not** reconnect the faulty string. * Disconnecting the Inverter from Voltage Sources * Measure the voltages between the positive pole of each string and the earth potential (PE) * Measure the voltages between the negative pole of each string and the earth potential (PE). * Measure the voltages between the positive and negative poles of each string. * Recommission the inverter |
| Varistor defective | one of the thermally monitored varistors has lost its protective function. | Their functional efficiency diminishes with age or following repeated responses as a result of overvoltages | * Disconnecting the Inverter from Voltage Sources * Release the screws of the upper enclosure lid. For this purpose, use an Allen key * Pull the enclosure lid forwards to remove it * Remove all varistors. * Use a multimeter to check each varistor to see if there is a conductive connection between terminals * Insert an insertion tool into the openings of the terminal contacts. * Insert new varistors into the slots * Pre-screw all screws and the corresponding conical spring washers on the upper enclosure lid and then tighten them in the sequence (torque: 6.0 Nm) * Recommission the inverter |

**TABLE 11** : Troubleshooting Outback GFX Inverter/Charger:

|  |  |  |  |
| --- | --- | --- | --- |
| **Symptom:** | **Unusual LEDs :** | **Possible Cause:** | **Action:** |
| No LEDs | No LEDs, including battery LEDs | No DC voltage. | Use a DC voltmeter to check the voltage directly on the DC terminals. If not present, the problem is external. |
| No AC output (will not invert) | No Inverter LED | Jumper JP1 missing. | Confirm the jumper is present. If missing, replace the jumper. |
| No Inverter LED | Unit defaulted off (No MATE present; initial install; JP1 confirmed present). | The inverter may have been given an OFF command in the factory. With DC present, use narrow pliers to remove jumper JP1 from its pins. Once removed, install it again. |
| No Inverter LED | Inverter set to OFF | *MATE system display only:* Set to ***ON*** with **INV** hot key. |
| Inverter LED flashes | Inverter set to SRCH (Search mode). | *MATE system display only:* If constant power is required, set to ***ON*** with **INV** hot key. |
| One or more inverters will not invert while others do (in multi-inverter system) | Inverting LED not illuminated on questionable unit | Unit is slave and is in Power Save mode. | *MATE system display only:* Check Power Save levels in ***ADV/FX/STACK*** menu and test with loads. Note if inverter comes on at the appropriate levels |
| Will not charge. | No AC IN LED | No AC input | See “Will not connect to AC” category below. |
| AC IN LED normal | Charger set to OFF. | *MATE system display only:* Check ***Charger Control*** screen with **AC IN** hot key and set to ***ON*** or ***AUTO***. |
| Low charge rate. | AC IN LED normal | Charge complete or nearly complete. | Check the DC voltage and charging stage using the system display, if present. Confirm with DC voltmeter. |
| AC IN LED normal | system display’s DC meter reads significantly higher than actual battery voltage | Check the DC voltage on the inverter’s DC terminals. If different from the system display reading, the inverter could be damaged. Otherwise, check the DC voltage on batteries with a voltmeter. If different from the reading on the inverter, this could be a DC connection problem |
| AC IN LED normal | Generator type does not work well in conjunction with Grid/Generator Support feature | *MATE system display only:* Turn off the ***ac2/gen support*** feature in ***ADV/FX/GEN*** menu. The ***ac transfer*** ***control*** must be set to ***gen*** in order to do this. In current models, if ***ac transfer*** ***control*** is set to ***grid***, the support feature cannot be disabled. |
| AC IN LED normal | High output loads. If total loads and charge exceed input setting, charge will decrease to give priority to loads. | Turn off some of the output loads and test the charge rate ag |
| Will not sell power to utility grid. | None (AC IN LED is illuminated) | Inverter priority | *MATE system display only:* Check ***Stop*** ***Sell Reasons*** menu ***(STATUS/FX/SELL)***. Inverter may be behaving correctly |
| None (AC IN LED is illuminated) | AC source does not meet requirements. | Verify grid voltage and frequency. Determine if they are within the inverter’s approved limits. If not the, inverter is behaving correctly. Contact the utility company if necessary. *MATE system display only:* The program selections for limits are ***IEEE*** or ***USER***. |
| None (AC IN LED and Inverter are illuminated) | High output loads will consume power before it is returned to the utility grid. | Turn off some output loads and observe the sell function. |
| None (AC IN LED is illuminated) | Inverter has been set to accept a generator. | Inverter will not intentionally sell to a generator. *MATE system display only:* Set ***ac transfer*** ***control*** to ***grid.*** |
| Will not connect to the AC source | No AC IN LED | No AC input. | Check the AC voltage on the inverter’s input terminals. If not present, the problem is external. If present, the inverter could be damaged |
| AC IN LED flashes | Inverter set to disconnect from AC | *MATE system display only:* Change AC Input Control setting from ***DROP*** to ***USE*** with **AC IN** hot key. |
| AC IN LED flashes | HBX mode has disconnected from AC | *MATE system display only:* Check **AC IN** hot key screen to see if HBX mode is in use. If activated prematurely, check the HBX settings. |
| AC IN LED flashes | Grid use function has disconnected from AC. | *MATE system display only:* If activated prematurely, check both ***ADV/MATE/GRIDUSE*** menu settings and MATE clock settings. |
| AC IN LED flashes | AC source does not meet requirements. | *MATE system display only:* Check ***STATUS/FX/DISCON*** for the reason for disconnection. If unit never originally connected, check Warning menu. Confirm the source voltage and frequency |
| Inverter clicks repeatedly. AC output voltage rises or drops to unusual levels with every click | AC IN LED switches between continuous and flashing. Inverter LED remains illuminated | Inverter’s output has been connected to its input. Voltage shifts are the result of trying to match its own voltage. | Disconnect wires from either inverter’s AC input terminals or AC output terminals, or both. If problem immediately disappears, it is an external wiring issue. The inverter’s AC HOT IN and AC HOT OUT must remain isolated from each other. |
| AC IN LED switches between continuous and flashing. Inverter LED turns on and off with each cycle. | Low AC input voltage. Can be caused by weak AC source, or by faulty input connection. | Test AC HOT IN and NEUTRAL IN connections with AC voltmeter. If low or fluctuating, this is an external problem. |
| AC IN LED switches between continuous and flashing. Inverter LED turns on and off with each cycle. (Generator only) | Inverter has been set to sell to utility grid but has been connected to a generator. | Unit will drive the generator voltage up to disconnection, then reconnect to the generator and try again. *MATE system display only:* Set ***ac*** ***transfer control*** menu to ***gen.*** This will keep it from selling |
| Loads drop out or crash during transfer. | None (Solid AC IN LED is replaced with solid Inverter LED) | Erratic AC source voltage. | Check AC voltage on inverter’s input terminals. If not consistent, problem is external. *MATE system display only:* AC source voltage may have dipped or hovered at a low enough point to crash a sensitive load before the inverter could take over. This can happen if ***ac1/grid lower limit*** or ***ac2/gen lower limit*** were turned down to accommodate a problematic AC source. To make the inverter respond sooner, raise the lower limit setting. (If this setting was intentional, then no action required.) |
| Inverter LED flashes | Inverter was set to SRCH (Search mode) | Unit will take a moment to come out of Search mode after transferring. *MATE system display only:* If constant power is required, set to ***ON*** with **INV** hot key. (If this setting was intentional, then no action required.) |
| None (Solid AC IN LED is replaced with solid Inverter LED) | Loads sensitive to inverter’s minimal transfer time | This product is not an uninterruptible power supply. Certain loads (such as highly sensitive computers) may not respond well to the inverter’s 12ms transfer time. It may be necessary to put a true UPS on the inverter’s output. |
| Inverter LED flickers; Error LED | Loads too large | Unit can transfer more power than it can invert. If loads are oversized, unit will falter or crash when switching to batteries. Reduce the size of the loads. |
| Inverter LED flickers; Error LED | Undersized battery cables. | Battery cables that are smaller than recommended will cause a significant voltage drop when switching to batteries, acting like either an overload or a low-battery condition. Size all cables correctly. |
| Unit reads AC input, even though no source is present. | AC IN LED flashes | Internal transfer relay may be damaged. | Disconnect AC input wires and turn inverter on. Test the AC HOT IN and NEUTRAL IN connections with an AC voltmeter. If voltage appears there, transfer relay may be jammed. |
| Inverter hums loudly. System display may show messages for high battery voltage, low battery voltage, or back-feed error | Error LED | Inverter output is being fed with an external AC source that is out of phase. | Disconnect AC output wires. Turn inverter off and then on. If the problem clears, reconnect the AC output wires. If the problem recurs when reconnected, an external AC source is connected to the output. |
| Inverter has been incorrectly stacked with another unit on the same output. All units come defaulted as master. | Check HUB ports and make certain the master inverter is plugged into port 1.  *MATE system display only:* Check stacking settings in the ***ADV/FX/STAC***  menu. Only one master is allowed per system. |