

## **4.0 Troubleshooting**

### ***PCA 30-MI***

#### ***PUMP DOES NOT RUN***

1. Check wiring diagram for proper connections. Confirm all electrical terminations are tight and secure.
2. Check for proper voltage selector switch settings on your DC source input. If the incoming voltage is less than the set point voltage, the controller will not turn on.
3. On a 24 volt battery system, make sure the batteries are at a full state of charge and that the controller voltage selector number "2" switch is turned on.
4. Check for proper controller input and output with a DC volt-meter. A quick look at the LED indicator lights will verify power coming from the DC source supply going to the controller (red), power going from the controller to the pump (green). If any of the three amber lights are flashing the pump will be turned off. They are over-current shut down, low water cut-off or remote switch cut-off. If the red light is on and the green and amber lights are not, make sure the system on/off switch is on, disconnect the remote switch wires and turn switch 4 off. If the green light is still not on, disconnect the pump wires, LD- and LD+. If the green light does not turn on then check voltage on LD- and LD+ with a volt-meter to confirm no output voltage. If there is still no output voltage the controller is faulty and must be sent back to the factory for repair. If the green light turns on and the output voltage is now equal to the input voltage, there is a short circuit either in the wiring or the pump.
5. For additional pump test, if the red light is on, connect a jumper wire across terminals PV- and LD-. This will bypass the controller and allow the pump to run directly from the DC source. This step will confirm pump operation. **If the DC source is a solar array, the test must be conducted when full sunlight is available for a valid test.**

#### ***RED AND GREEN LIGHTS ARE ON, AMBER LIGHTS ARE OFF AND THE PUMP DOES NOT RUN***

To verify power coming out of the controller, connect a DC voltmeter across LD+ and LD-. If 12 Volts or more is coming out then:

1. Check the splice above the pump for proper connections.
2. Check for broken wire leading to the pump.
3. Check for open motor winding. With an ohmmeter set on the R x 1 scale, check between the two pump lead wires. The meter reading should be between .5 to 50 ohms. If the resistance is higher than this, disconnect the pump at the splice above the pump and check again.

#### ***NO VOLTAGE AT THE LD+ AND LD- TERMINALS***

1. Make sure the system ON/OFF switch is ON.
2. Make sure none of the amber lights are flashing.
3. Check to see if the float switch, if used, is functioning properly.

4. Check the controller for proper programming and adjustment. If the voltage setting on the controller is higher than the incoming voltage, the controller will not turn on. (See controller adjustment section)

**Note: To bypass all remote switching circuits, disconnect all wires from the sensor interface terminal block in the controller housing (the small terminal block) and switch program switches #4 to the OFF position.**

***EXCESSIVE CURRENT DRAW (More than the rating of the pump, but less than the rating of the controller)***

1. Check wiring diagram for proper connection.
2. Check for skinned wires or faulty underwater splice.
3. Check for locked motor armature. With the pump out of the well, bypass the controller and connect power directly to the motor leads. If the pump still does not run and the current is over 1.5 amps, the pump is in a loaded or locked rotor condition and must be repaired.