PRO-PAK TROUBLESHOOTING GUIDE

OVERVIEW OF OPERATION

The PRO-PAK Chargers are considered "Smart Chargers". When plugged into AC power each output of the PRO-PAK starts up in ***BATTERY TEST*** stage where it begins looking at the battery that it is connected to and determines if it is a good connection. The battery voltage level must be above 2 volts, the fuse at the end of the cable must be good and the connection must not be wired in reverse. If any of these problems exist, the charger will blink the red and green LED'S back and forth for that problem output. This initial test stage lasts for 15 seconds. If all is normal the red LED will be turned on and after the 15 second test stage, the output will begin charging the battery at ***FLOAT*** stage which is 13.4 Volts. The voltage at the batteries will most likely be less than this depending on how empty the battery is. The charger output will stay in this stage and will do a test at the one minute mark to determine if it needs to go to ***BULK*** stage. BULK stage is 14.2 Volts. A test is run to see how empty the battery is. If the battery is fairly empty – for example below 85%, then the output will go to BULK, if the battery is fairly full (above 85%) then the output will stay in FLOAT and the green LED for that output will light. It is important to note that the output is still charging at FLOAT stage in this situation until the battery is full.

If the output goes into BULK stage, then the LED for that bank will stay red after that one minute mark. The output will stay in this stage for some period of time depending on how empty the battery is. For example, if the battery is 40% empty, the output might be in this stage for 4-5 hours. If the battery is only 25% empty, the output might only stay in this stage for 1-2 hours. While in this stage, the charger will stay at a steady charge current level of some time depending on how empty the battery is. At some point as the battery is filling up, the output will begin to slow down the charge current to the battery to prevent overcharge. This slowdown stage is called ***TAPER***. Once the battery gets close to full, the output will shut off , the red LED will turn off and the green LED will turn on. The output will stay off for a few minutes to let the battery settle, then it will turn back on at FLOAT charge level to put the final ***TOP OFF*** charge on the battery. The TOP OFF stage will last for some period of time depending on the size and age of the battery.

After the TOP OFF stage, the output will turn off and stay off for 24 hours. After this 24 hour period, the output will turn on at FLOAT level to gently TOP OFF the battery then shut off again. This will occur once every 24 hours. This stage is referred to as ***STORAGE*** charge.

TROUBLESHOOTING

Problem: LED's for an output are blinking back and forth?
Clue: When the LED's blink, it means the smart chip for that bank is not seeing the battery for some reason.

Where to look:

1. Check the connections to the battery to make sure they are good. If the connections are loose or hooked up backwards it could cause this failure.
2. Check the fuse on that output to see if it is good. Please note that the fuse is located in a fuse-holder at the end of the cable inside shrink wrap.
3. Check the battery voltage. If the battery voltage is below 4 volts, it could cause the LED's to blink.

Problem: The red LED stays on all the time on one bank. It never turns green.
Clue: The red LED is turned on when the charger detects a battery and is starting its charge cycle.

Where to look:

1. Unplug the charger from its AC source. Next, disconnect the output cable from the battery and then hook up the AC source again. When you do this, the red and green LED should blink back and forth for the unhooked output. If it blinks back and forth, this means the "smart-chip" for that bank is functional.
2. Re-connect the output to the battery and take a volt-meter and measure the voltage of the battery while the charger is not plugged into AC source. Record the voltage on paper. If the voltage is up around 12.9Volts or higher, this might answer the question why the red LED is on continuously. If the battery voltage is above 12.9 Volts, the "smart-chip" will detect this and determine that the battery is already fully charged and not start the charging process. This can happen if that particular output is a little more sensitive to the full battery reading. This is rare but can happen based on a setting at the factory. If this is the case, the output will begin to operate properly when the battery capacity is used i.e. trolling power used on the lake.
3. If the above voltage reading is not 12.9Volts or above, the problem might be something else. Run another test by leaving the voltmeter connected to the battery when the charger is plugged into AC power. About 15-20 seconds after plugging in to AC power the voltage on the voltmeter should begin to rise. This is an indication that the battery is charging. If this happens and the red LED stays on for more than 24 hours, this is most likely a result of a defective battery. Some batteries continue to take current in a charge without properly charging.
4. If, after the 15-20 seconds you don't see a rise in voltage on the voltmeter, wait 1 minute while continuing to watch the meter. If no change, the charger output is not turning on at all and this bank is defective on the charger.

5. If the fuse is on the black lead, the red LED can be on all of the time if the fuse is blown. If the fuse is on the red lead then the red and green LED's will blink if the fuse is blown.

Problem: There are no LED lights at all on one or more outputs after charger is plugged in to AC power
Clue: When AC power is applied there should always be at least one LED lit per output.

Where to look:

1. Check to make sure the extension cord is good. Also check to make sure the AC outlet has power. This can be checked by plugging a light or fan into the outlet to see if it works.
2. If you verify the AC outlet has power then this problem is a clear indication that there is something wrong with the charger. Charger needs to be replaced.