



# CHARGER TROUBLESHOOTING GUIDE

# **TABLE OF CONTENTS**

Troubleshooting Questionnaire 1					
General Questions	2				
Troubleshooting Steps - 1st Generation Charger					
Step 1: Checking The Charger Wiring	3				
Step 2: Checking AC Input Voltage	4				
Step 3: Checking DC Output Voltage	5				
Step 4: Checking Charger Output	6				
Step 5: Checking Charger Indicators	8				
Troubleshooting Steps - New Generation Charger					
Step 1: Checking The Charger Wiring	9				
Step 2: Checking AC Input Voltage	9				
Step 3: Checking DC Output Voltage	10				
Step 4: Checking Charger Output	11				
Step 5: Checking Charger Indicators	12				
Troubleshooting Steps - Chief Charger					
Step 1: Checking The Charger Wiring	13				
Step 2: Checking AC Input Voltage	14				
Step 3: Checking DC Output Voltage	16				
Step 4: Checking Charger Output	18				
Step 5: Checking Charger Indicators	19				
Bar Graph Troubleshooting Guide	20				
Deluxe Indicator	20				
Contact Us	21				

# **TROUBLESHOOTING QUESTIONNAIRE**

All Measurements with Charger "ON" (Shore Power Applied)		
Is Charger "ON" (shore power applied)?	Yes	No 🗌
VDC at Charger Output Connector "ON"		
Is charger connected to battery?	Yes	No 🗌
VDC at Battery Terminals "ON"		
Remote Indicator Pin 2 to 1(VDC)		
Remote Indicator Pin 2 to 3 (VDC)		
Remote Indicator Pin 2 to 4 (VDC)		
Remote Indicator Pin 2 to 5 (VDC)		
All Measurements with Charger "OFF" (Shore Power Disconnected)		
Is Charger "OFF" (shore power removed)?	Yes	No 🗌
VDC at Charger Output Connector "OFF"		
VDC at Battery Terminals "OFF"		

**General Questions** 

New Installation or Replacement?				
New Installation 🔲 Replacement				
Is the Power Light "ON"?	Yes 🗌 No 🗌			
Is the System Light "ON"? (If applicable)	Yes 🗌 No 🗌			
Is the charger warm?	Yes 🗌 No 🗌			
How many batteries are in the system?				
How are the batteries wired?				
Parallel Series Series	Parallel			
What is the wire size (AWG)?				
Bars lit on the Bar Graph Display?				
Is the fuse blown?	Yes 🗌 No 🗌			
Is the fan running?	Yes 🗌 No 🗌			
Are the batteries isolated?				
Yes – A, B Both switch installed Yes – Battery 1, Battery 2 switch inst	alled 🗌 No			
What is the size of the batteries?				
What is the wire length (feet)?				



## **1<sup>ST</sup> GENERATION CHARGER**

Checking the Charger Wiring

1



AC Connections: Black = L, White = N, Green = Ground



Checking AC Input Voltage

If your "POWER" LED is on, you have 120VAC installed correctly.



If your "POWER" LED is off, use a voltmeter and check the "INPUT" terminal strip for 120VAC.



2

If your "POWER" LED is off, and you have 120VAC at the "INPUT" terminal strip, check the input circuit breaker.



If your "POWER" LED is off, and you have 120VAC at the "INPUT" terminal strip, and circuit breaker is OK, then send charger back for repair.

Checking DC Output Voltage

3



If your "BATTERY CONNECTED" LED is on, you have 12VDC installed correctly.



If your "BATTERY CONNECTED" LED is off, use a voltmeter and check the "OUTPUT" terminal strip for 12 Volts DC.



If your "BATTERY CONNECTED" LED is off, and there is no voltage at the "OUTPUT" terminal strip. Then check the battery connections for 12 Volts DC.



4



"Fan On" LED should turn on when fan is running. If LED is on, and the fan is not running there is a problem with the fan.



- Fan turns on when the output current is > 8A.
- Fan turns off when the output current tapers to < 5A.



The easiest way is to use a DC Clamp On Meter to see if there is current flowing from the charger to the battery.





- Measure and record the voltage at the charger.
- Measure and record the voltage at the battery.
- Voltage at the charger should be higher or equal to the battery. If higher than 0.75V, there could be a poor connection or wire gauge is to small.
- Voltage at the battery should NOT be higher than the voltage at the charger.





Indicator showing Charger Output current < 1A.



**Showing Output** 

Charger supplying current to battery or load.



#### **Not Showing Output**

Battery not connected, not charging or charger in current limit (low battery). Checking Charger Indicators



5

Charger Output current < 1A



Charger Output current 10-15A



Charger Output current 20-30A

RGE

Inoperative or charger has reached its current-limit (40A)



## **NEW GENERATION CHARGER**



INDICATOR OUTPUT BAT1 PUMP + + + = = POWER 3 SYSTEM 5 PLC REMUTE

If your "POWER" LED is on, you have 120 VAC installed correctly.



If your "POWER" LED is off, use a voltmeter and check the "INPUT" terminal strip for 120 VAC. Checking DC Output Voltage

3



If your "POWER" LED is off, use a voltmeter and check the "OUTPUT" terminal strip for 12 Volts DC.



- Green LED illuminates when AC Shore Power is applied.
- Yellow LED (STATUS):
  - Fast Flash (5x/sec): reverse polarity
  - Slow Flash (1x/sec): battery not connected
  - Solid On: current-limit (normal operation)
  - Solid Off: (normal operation)

Checking Charger Output

4



- Fan cycles on/off if battery is disconnected.
- Fan is on when output is >10A; off when <5A.



The easiest way is to use a DC Clamp On Meter to see if there is current flowing from the charger to the battery.



- Measure and record the voltage at the charger.
- Measure and record the voltage at the battery.
- Voltage at the charger should be higher or equal to the battery. If higher than 0.75V, there could be a poor connection or wire gauge is to small.
- Voltage at the battery should NOT be higher than the voltage at the charger.

#### **DIP Switch Settings**

Switches 1 and 2: Battery Type Switches 3 and 4: Float or 3-Step

4

Note: Switches down come as factory default setting: Lead-acid, float charge.

When charging, voltage at the charger should be 13.25 VDC (default switch settings).



#### 5 Check Charger Indicators



## **CHIEF CHARGER**

1

#### **Checking The Charger Wiring**



#### 2 Checking AC Input Voltage



If your display is on, you have 120 VAC installed correctly.



If your display is off, use a voltmeter and check the "INPUT" terminal strip for 120 VAC.

Checking AC Input Voltage

2



If your display is off, and you have 120VAC at the "INPUT" terminal strip, check the input 10 amp fuse.

If your display is off, and you have 120VAC at the "INPUT" terminal strip, and the input fuse is OK, then send charger back for repair.

#### Checking DC Output Voltage

3



If your display is on and you read some amperage , you have 12VDC installed correctly.



If your display is on and you do not read any amperage, use a voltmeter and check the "OUTPUT" terminal strip for 12 Volts DC.



If there is no voltage at the "OUTPUT" terminal strip. Then check the battery connections for 12 Volts DC.

**Checking Charger Output** 

4



Fan turns on and off when the output current changes. Higher the current the more the fan will run.



The easiest way is to use a DC Clamp On Meter to see if there is current flowing from the charger to the battery.

#### Checking Charger Output



4



- Measure and record the voltage at the charger.
- Measure and record the voltage at the battery.
- Voltage at the charger should be higher or equal to the battery. If higher than 0.75V, there could be a poor connection or wire gauge is to small.
- Voltage at the battery should NOT be higher than the voltage at the charger.



When the charger is connected to at least one battery bank and to AC, the onboard display will turn on and start reporting charging and battery status information. picture shows the Home screen. The onboard display is equipped with a touch screen interface.



5

Α	LED indicators	F	Shows up when the unit fan is activated
в	Main menu	G	Battery Temperature Sensor (BTS) reading (requires optional BTS)
С	Shows up when notifications are present	н	Battery level shows up when a battery is connected and deteched by the charger
D	Home screen	I	Charging state
E	Shows up when USB device is connected	J	Control buttons: Home   Menu   Basic Set.   Advanced Set.



#### Optional OLED Auto Eject Cover Display Part# 091-266

#### **Bar-Graph Troubleshooting Guide** AC 1200, AC 1200 PUMP PLUS



#### CHARGER AMPS OUTPUT with 10ft of 8 gage wire

Deluxe Indicator



This indicator shows a lot of information and is very helpful in troubleshooting.

# WE ARE HERE FOR YOU



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