

## Battery Charger Instructions

CHG EZ1 001 - BU 36V

CHG UNV 123 - BU 36V

CHG EZ2 002 - BU 36V

CHG CC2 001 - BU 48V

CHG YA4 003 - BU48V

The chargers are designed for 36 and or 48 volt carts and care must be taken to ensure the correct voltage is used per application. Each charger uses an electrical plug designed to fit the cart half. Again, make sure the cart half aligns correctly with the charger plug.

36 volt chargers are 115 VAC @ 12.0A (MAX) 60 HZ output: 25A @ 36 VDC

For use with lead-acid batteries rated at 180 to 260 Ampere-Hours (20 AH Rating) 18 Cell

48 volt chargers are 115 VAC @ 12.0A (MAX) 60 HZ output: 18A @ 48 VDC

For use with lead-acid batteries rated at 180 to 260 Ampere-Hours (20 AH Rating) 24 Cell

### Overview:

The Eagle Series Battery Charging Systems utilize advanced micro controller technology to monitor all parameters of the charger while it is operating. These units are powered by a highly efficient proprietary transformer design that allows the units to be lighter, smaller, quieter and run much cooler than older ferro resonant designs. By utilizing SCR control technology with the latest control circuitry a precise charge current is controlled.

Precise control over output current allows the charger to constantly adjust and adapt to various factors such as battery capacity, battery state of charge, internal and external air temperature and AC line input. Unlike ferro resonant chargers, the Eagle Series is able to begin charging batteries at very low voltages. For example, an Eagle Series charger can detect and begin a battery system at a voltage as low as approximately .3 volts per cell, whereas other chargers may not be able to charge a severely discharged battery system until the voltage has been raised by another means. Also, unlike ferro resonant chargers with little or no control, the Eagle Series is able to apply the exact amount of finishing current required to maintain desired voltages which assure a properly charged battery system after every charge cycle.

All Eagle Series chargers are equipped with an on-board diagnostic system which constantly monitors the charger and alerts the user if a problem is detected with either the batteries or the charger. If the on-board diagnostic system senses a problem, a series of one to five red LED's will flash. This feature offers a high degree of safety because it eliminates the risk of battery explosions or acid overflows that are possible when using other battery chargers.

A specially engineered 5 Step Charge Profile gives the Eagle Series unsurpassed battery charging performance capabilities. The five stages are as follows: Forming, Bulk, Absorption, Equalize-Finish, and Float-Maintenance. This method of charging is designed to properly recharge the batteries while providing needed mixing of the electrolyte. The Float-Maintenance feature of this charger provides the user the most convenient and safe method of maintaining the batteries while they are not being used.

**Forming Stage:** If the battery system is below 1.75 volts per cell the charger will only output 8 amps. Under normal circumstances, this will only last for a very short period and full charger current will begin once the voltage has risen above this voltage. This is a very important safety feature that helps to prevent possible battery failure due to a faulty battery in the series battery system.

**Bulk Stage:** Most of the battery capacity is replaced during this stage. Maximum rated charging current is applied during this stage with a slight taper as the voltage rises.

**Absorption Stage:** A constant voltage is held during this stage as the charge current is allowed to diminish to 8 amps.

**Equalize-Finish Stage:** This very important stage is designed to prevent premature battery deterioration due to sulphation (mineral buildups on the plates) and cell unbalance.

**Float-Maintenance Stage:** Once the battery system is fully charged, the voltage is kept at a lower constant voltage. This eliminates capacity lost to self discharge and also prevents premature sulphation.

#### LED Fault Code Indications

The microprocessor is constantly monitoring the charger circuitry and will detect and display the following indications if a fault is detected.

##### 1 Red Blinking LED = No Battery Detected

This indication occurs whenever the charger circuitry cannot detect a battery. The charger circuitry will not allow charge current to flow under this condition. With the AC power supply cord unplugged, check the connection to the batteries for proper polarity (black wire to negative and red or white wire to positive). Also check for corrosion free secure connections to the battery. Please call Technical Services at 888-444-9994 for further assistance.

##### 2 Red Blinking LEDS = Forming Stage Timeout Shutdown

This indication occurs if the battery voltage has not risen above 1.75 volts per cell within the first 3 hours of charging. This indicates a possible battery problem and the charge cycle has been terminated at this point. The charger may be reset by disconnecting and reconnecting the AC power supply cord. Please call Technical Services for further assistance.

##### 3 Red Blinking LEDS = Overall Timer Shutdown

This indication occurs if the charger has not completed the charge cycle within the allowable factory set time period (16 hours). This indicates a possible battery problem and the charge cycle has been terminated at this point. The charger may be reset by disconnecting and reconnecting the AC power supply cord. Please call Technical Service for further assistance.

##### 4 Red Blinking LEDS = Internal Over-temp Shutdown

This indication occurs if the charger circuitry has detected operating temperatures inside the charger enclosure that are above the factory specified levels. This could indicate a possible charger problem and also that the charge cycle has been terminated. The charger may be reset by disconnecting and reconnecting the AC power supply cord. Please call Technical Services for further assistance.

### 5 Red Blinking LEDS = Over Voltage Protection

This indication occurs if the charger circuitry has detected that the output circuitry is possibly defective. Please call Technical Services for further assistance.

If you own a 1995-present, 48 volt Club Car DS, the following wiring change is required for proper operation of the charger.

Lift the seat assembly from the cart and place it aside. Standing on the driver's side of the cart disconnect the main battery negative cable (SEE Picture 1). Make sure if the cart has a run/tow switch the switch is placed in the tow position before disconnecting the battery pack. Locate the computer that is under the driver's side rear upper body. (See Picture 2) You can follow the negative cable you just disconnected as it will route directly through the center of the computer. You will notice a smaller gauge wiring assembly from the computer that has a larger 12 gauge black wire inside the loom. Cut this wire as close to the computer as possible. Add a 5/16" wire lug to the wire and route it to battery number 6 negative connection. (See Picture 2) The alternate location for connecting this wire is at B- on the controller. Once all connections are secure connect the main battery negative cable back and tighten securely. Place the cart run/tow switch back to the run position. You can now plug the charger in. Below are some pictures to assist the wiring change. For Club Car Precedent models, see Picture 3.

Battery number 6 Negative Connections

