

## **SB, OPTIMA Batteries recharging, 2021-03**

### **SYMPTOM/DESCRIPTION**

Some of our clients experience problems with the OPTIMA batteries we include in most of our Light Compaction machines.

There are two different OPTIMA batteries we use:

- 38Ah 12V YT R2,7 included in LG204, LG300 and LG400 Reversible compaction plates
- 48Ah 12V YT R3,7 included in LG504 and LH804 Reversible compaction plates and in the LP9505 Trench compactor.

The OPTIMA batteries are AGM batteries (Absorbent Glass Matt separators) built in a spiral structure that hold electrolyte like a sponge to eliminate acid spilling. The lead used is 99.99% pure, which provides lower internal resistance and quicker recharging. These features give up to 15 times more vibration resistance and up to 3 times the life of a traditional flooded battery.

Due to the long storage time for these batteries and considering that our machines may stay in ours or distributors' warehouses for a time being, our products may arrive to the client with a battery low on charge. There were several cases in North European countries where the machines couldn't be started in cold weather. In some cases, salesmen, distributors and clients alike, were unable to recharge these OPTIMA batteries.

### **AFFECTED UNITS**

LG204, LG300, LG400 and LG504 with EI. Started motors, LH804 and LP9505 Trench compactor.

### **CORRECTIVE ACTION**

A deeply discharged OPTIMA, at less than 10.5 Volts will not test or recharge properly if treated as a regular flooded or gel battery. Many basic battery chargers aren't designed to charge batteries with extremely low voltage. If your OPTIMA is below 10.5 Volts, the battery charger may not start up.

Most high quality modern battery chargers though, have built in features to charge AGM batteries like OPTIMA. Some have specific settings to charge AGM batteries. **Do not use Gel settings as they will not fully charge an OPTIMA and may even damage it over time.**

The Operating Manuals of Light Compaction machines describes how to charge the batteries and mentions that especially in winter, it is advisable to do 1-2 trickle charging while the machine is in storage. We recommend to check these batteries during the period the machines are in storage, no matter the season, and charge them if needed.

This Service Bulletin describes how to charge the OPTIMA batteries. These measures should be taken by the sales and distribution companies in order to control the OPTIMA batteries condition (at least prior to the sale of a machine).

The best way to recharge an OPTIMA battery is to use AGM specific battery charger. According to OPTIMA, even a deeply discharged down to 1.5 volts AGM OPTIMA battery can be recharged with such an AGM specific charger.

Below in *Additional Information* is some info taken from the Operating Manuals of these machines about how to charge the OPTIMA batteries.

## **PARTS INFORMATION**

No part is to be replaced or removed.

## **WARRANTY INFORMATION**

The normal warranty policy applies.

## **ADDITIONAL INFORMATION**

*Excerpts from Operating Manuals:*

### **Recommended battery chargers**

The recommendations are correct at an average ambient temperature of 25°C/77°F.

| <b>Battery charger type</b>  | <b>Recommendations</b>  |
|--|---|
| Alternator   | 13.65- 15.0 V.  |
| Constant voltage charger   | 13.8- 15.0 V. Max. 10 A. Charge for 6-12 h.   |
| Float charger  | 13.2- 13.8 V. Max. 1 A. No time limit at lower voltages.  |
| Fast charger, constant voltage charger   | Max. 15.6 V. No current limit if the battery temperature is less than 50°C/125°F. Charge until the current is less than 1 A.                              |
| Battery charger for cyclic batteries or batteries connected in a series string | 14.7 V. No current limit if the battery temperature is less than 50°C/125°F. When the current is less than 1 A, charge with 2 A constant current for 2 h. |

### **Charge time at different currents**

The recommendations are correct at an average ambient temperature of 25°C/77°F. The charge time changes with different ambient temperatures and different battery chargers.

| <b>Current</b> | <b>Approximate time to 90% charge level</b> |
|----------------|---|
| 100 A          | 35 minutes                                  |
| 50 A           | 75 minutes                                  |
| 25 A           | 140 minutes                                 |

There is a way to charge a deeply discharged OPTIMA even with a battery charger that is not AGM specific, by tricking it to “think” that it’s charging a regular car battery.

What is needed is to connect the OPTIMA to a regular flooded battery (or another OPTIMA) that is at least 12 Volts in parallel. Negative to negative and positive to positive terminals. Then connect the charger, set on 10 Amps, to the OPTIMA or to the regular battery.

As the batteries are connected in parallel, the charger will “see” them as one, but will “read” the higher voltage. Thus it will turn on and all of the amperage is going to go to the deeply discharged OPTIMA.

What remains is to check the OPTIMA voltage after an hour. Firstly disconnect the charger from the OPTIMA and disconnect the jumper cables. Then check the OPTIMA voltage and make sure it is at least 10.5 volts or above. If it’s less, it may take a little longer because the battery must have been really deeply discharged. However, if it is above 10.5 volts, take the jumper cables off and keep charging the OPTIMA only. If the charger is automatic, it will shut off itself when the charging is done.

**Note:**

- Charging batteries may be dangerous.
- Always wear adequate eye protection when working on batteries.
- Make sure to monitor your battery while it is charging.
- The OPTIMA could become warm during charging, which is normal. If it gets hot, stop charging. Most probably there is short circuit in it.

Here are some useful links you may find interesting information about AGM OPTIMA batteries as well as short YouTube movies that can be very helpful:

<https://www.optimabatteries.com/en-us/support/charging/charging-tips>

<https://www.youtube.com/watch?v=ieo71HWRS Ao>

<https://www.youtube.com/watch?v=Slqd73ZOQvI>

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**Revision History**

| Rev. | Date    | Order id. | Description |
|------|---------|-----------|-------------|
| A    | 2021-03 | SB-6478   | Created     |